NOVATO SANITARY DISTRICT
RESOLUTION NO. 2891

A RESOLUTION APPROVING PLANS AND SPECIFICATIONS, MAKING DETERMINATIONS ON ENVIRONMENTAL IMPACT, ESTABLISHING PREVAILING WAGE SCALE, CALLING FOR PROPOSALS, AND PROVIDING FOR NOTICE THEREOF

DECHLORINATION FACILITY RELOCATION PROJECT

WHEREAS, an Evaluation of Environmental Impact (Initial Study) was prepared pursuant to the California Environmental Quality Act that concludes that the Dechlorination Facility Relocation Project as proposed will not result in significant adverse effects to the environment; and

WHEREAS, the Novato Sanitary District has considered the mitigated negative declaration together with any comments received during the public review process; and

WHEREAS, the mitigated negative declaration reflects the lead agency's independent judgment and analysis; and

WHEREAS, the documents and other material that constitute the record of proceedings upon which this decision is based are located at the Novato Sanitary District offices.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Novato Sanitary District;

A. Adopts the following findings:

1. The potential impacts of the proposed Dechlorination Facility Relocation Project have been assessed and have been determined not to be detrimental to the public health, safety, or welfare.

2. The proposed Dechlorination Facility Relocation Project has been processed in accordance with the applicable provisions of the California Government Code and the California Environmental Quality Act (CEQA).

3. The project will not have a significant adverse effect on the environment pursuant to the California Environmental Quality Act, as supported and documents by the Initial Environmental Study.

B. Adopts an Environmental Determination of Negative Declaration pursuant to Section 15070 of the California Environmental Quality Act, finding the project will not have a significant adverse effect on the environment.

Exhibit 4

C. Adopts a Mitigation Monitoring Plan as outlined in the Negative Declaration.

BE IT FURTHER RESOLVED by the Board of Directors of the Novato Sanitary District, Marin County, California, that

1. The Dechlorination Facility Relocation Project is proposed to be conducted in accordance with the plans and specifications heretofore submitted to this Board and hereinafter approved.

2. That the specifications for the Dechlorination Facility Relocation Project, prepared by Raines, Melton, and Carella, dated January 2005, and filed with the Secretary of said District this date, be, and the same are hereby, approved.

3. That the Secretary be, and she is hereby, directed to give notice inviting sealed proposals for the Dechlorination Facility Relocation Project, by publishing the same at least twice, not less than five (5) days apart, in the Marin Independent Journal, a daily newspaper of general circulation, circulated within the District, the first publication to be at least ten (10) days before the date of opening the bids.

4. Sealed proposals will be publicly opened, examined and declared at the office of the District, Novato Sanitary District, 500 Davidson Street, Novato, California 94945 at the hour of 2:00 p.m. on Wednesday, March 2, 2005, to be reported to the Board at its next meeting on Monday, March 14, 2005, at the hour of 4:30 p.m. for the Dechlorination Facility Relocation Project, in accordance with the specifications therefor.

5. Payments for said equipment and work to be done by the Contractor shall be made in cash by said District to the Contractor on an itemized estimate duly certified and approved by the District Manager-Engineer and the Board of Directors of said District, based on labor and materials furnished, but said District shall retain ten percent (10%) of the amount of such estimate and the amount so retained will be paid to said Contractor thirty-five (35) days after completion and acceptance of said work by said District Manager-Engineer and the Board of Directors.

Except as provided in the specifications, any amount retained by District from such estimate so retained will be paid as hereinabove provided.

6. Pursuant to Section 1773 of the Labor Code of the State of California, the District has obtained from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages and the general prevailing rate for holidays and overtime work for each craft, classification, or type of worker required to execute the contract. A copy of said prevailing rate of per diem wages is on file in the office of the District, to which reference is hereby made for further particulars. Said prevailing rate of per diem wages will be made available to any interested party upon request, and a copy thereof shall be posted at the job site.

7. All proposals shall be accompanied by a cashier's or certified check payable to the order of the Novato Sanitary District, for not less than ten percent (10%) of the amount of the bid, or by a bond in said amount and payable to said District, signed by the bidder

and a corporate surety. Said check shall be forfeited or said bond shall become payable to said District in case the bidder depositing the same does not, within fifteen (15) days after written notice that the contract has been awarded to him or her, enter into a contract with the District, the faithful performance of which shall be secured by an undertaking in the amount of one hundred percent (100%) of the amount so bid, with sureties satisfactory to the District Board of Directors and which shall be accompanied by a labor and materials bond in a sum equal to one hundred percent (100%) of the amount so bid, under the provisions of Title 15 (commencing with Section 3083), Part 4, Division 3 of the Civil Code and furnish certificates of insurance as provided in the specifications.

* * * * * * * *

I hereby certify that the foregoing resolution was duly and regularly passed and adopted by the Board of Directors of the Novato Sanitary District, Marin County, California, at a meeting thereof duly held on the 13th day of September, 2004, by the following vote:

AYES, and in favor thereof, Directors: Fritz, Knutson, Long, Quesada, Renati

NOES, Directors: None

ABSENT, Directors: None

PASSED AND ADOPTED as a resolution of the Board of Directors of the Novato Sanitary District, at a meeting held on January 24, 2005.

AYES, Members: Fritz, Knutson, Long, Quesada, Renati
NOES, Members: None
ABSENT, Members: None

Arthur T. Knutson, President

Attest: (SEAL)

Beverly B. James, Manager-Engineer

s:\wp\word\june\res\dechlor. sta. neg. dec.doc

Notice of Determination **Form C**

To: Office of Planning and Research
P.O. Box 3044, Room 212
Sacramento, CA 95812-3044

County Clerk
County of Marin
3501 Civic Center Drive, Room 247
San Rafael, CA 94903

From: (Public Agency) Novato Sanitary District
500 Davidson Street
Novato, CA 94945
(Address)

Subject:
Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

Novato Sanitary District Dechlorination Facility Relocation Project
Project Title

2004122017	Sandeep Karkal	415-892-1694
State Clearinghouse Number (If submitted to Clearinghouse)	Lead Agency Contact Person	Area Code/Telephone/Extension

Project Location (include county) The proposed project is located at the Ignacio Treatment Plant and an injection site approximately 600 feet north of Bel Marin Keys Boulevard. The portion of the project located at the Ignacio Treatment Plant is on land owned by the Novato Sanitary District and is within the City of Novato. A portion of the project is located in an NSD easement through privately owned property. This portion is located within the City of Novato Sphere of Influence as defined by LAFCO, but is outside the City/Urban Growth Boundary line.

Project Description: The project will relocate a dechlorination facility. The project would construct a dechlorination chemical storage facility consisting of a tank and metering pumps at the Ignacio treatment plant (ITP), an injection point on the combined outfall from the Ignacio and Novato treatment plants (NTP), and interconnecting piping. The dechlorination facility will continue to use sodium bisulfite to remove chlorine residual from the treated effluent from the Ignacio and Novato treatment plants before it is discharged to San Pablo Bay.

This is to advise that the Novato Sanitary District has approved the project described above on
☒ Lead Agency ☐ Respnsible Agency
January 24, 2005 and has made the following determinations regarding the project described above:
(Date)

1. The project [☐will ☒will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provision of CEQA
3. Mitigation measures [☒were ☐were not] made a condition of the approval of the project.
4. A statement of Overriding Considerations [☐was ☒was not] adopted for this project.
5. Findings [☐were ☒were not] made pursuant to the provisions of CEQA.

This is to certify that the IS/MND with comments and reponses and record of project approval is available to the General Public at:

Novato Sanitary District Office, 500 Davidson Street, Novato, CA 94945

Signature (Public Agency)	1-24-05 Date	Manager-Engineer Title

Date Received for filing at OPR:

January 2004

NOVATO SANITARY DISTRICT

Dechlorination Facility Relocation Project

Draft Initial Study and Mitigated Negative Declaration

December, 2004

Raines, Melton & Carella, Inc.
Consulting Engineers/Project Managers

TABLE OF CONTENTS

FIGURES

SECTION 1

PROJECT DESCRIPTION

1.1 INTRODUCTION

The Novato Sanitary District (NSD) provides wastewater collection, treatment and disposal services for the community of Novato, California. NSD operates two wastewater treatment plants (WWTP). The Novato Treatment Plant (NTP) serves the northern two thirds of Novato and the Ignacio Treatment Plant (ITP) serves the southern third of Novato. The location of these treatment plants is shown in Figure 1. Each treatment plant provides primary and secondary treatment plus ammonia removal, filtration, and disinfection with sodium hypochlorite. During the dry summer months, treated effluent is recycled and used to irrigate pastures and operate a wildlife pond adjacent to Highway 37. During the winter months, treated effluent is dechlorinated with sodium bisulfite and discharged to the San Pablo Bay.

The existing NSD dechlorination facilities are located in the Hamilton Wetlands Restoration Project (HWRP), an area of land adjacent to the San Pablo Bay. However, the HWRP will be undergoing rehabilitation by the Army Corps of Engineers and the State Coastal Conservancy (SCC) to become tidal wetlands. As a result, the SCC has requested that NSD relocate the existing dechlorination facilities out of the HWRP area and is funding the design and construction of replacement facilities. NSD has initiated the Dechlorination Facilities Relocation Project to accomplish this relocation.

1.2 BACKGROUND

A predesign report was prepared by Raines, Melton and Carella, Inc. in October 2004 to explore alternatives for relocating the existing dechlorination facilities out of the HWRP area. Two main alternatives were developed in the predesign report:

Alternative 1: Separate Facilities
This alternative would construct separate dechlorination facilities at each treatment plant. Treated effluent from each facility would be dechlorinated prior to leaving the treatment plant site.

Alternative 2: Combined Facilities
This alternative would construct a single dechlorination chemical storage facility at the ITP site with a single chemical feed point on the combined outfall from both treatment plants. The effluent flow would be dechlorinated in the combined outfall prior to discharge to the San Pablo Bay.

The goals of the dechlorination project were defined within the predesign report as follows:

- Schedule - New Dechlorination facilities shall be operational by October 2005
- Facility Planning - Design of the new dechlorination facilities must be consistent with the long-term planning currently underway in the District's Wastewater Facilities Plan.

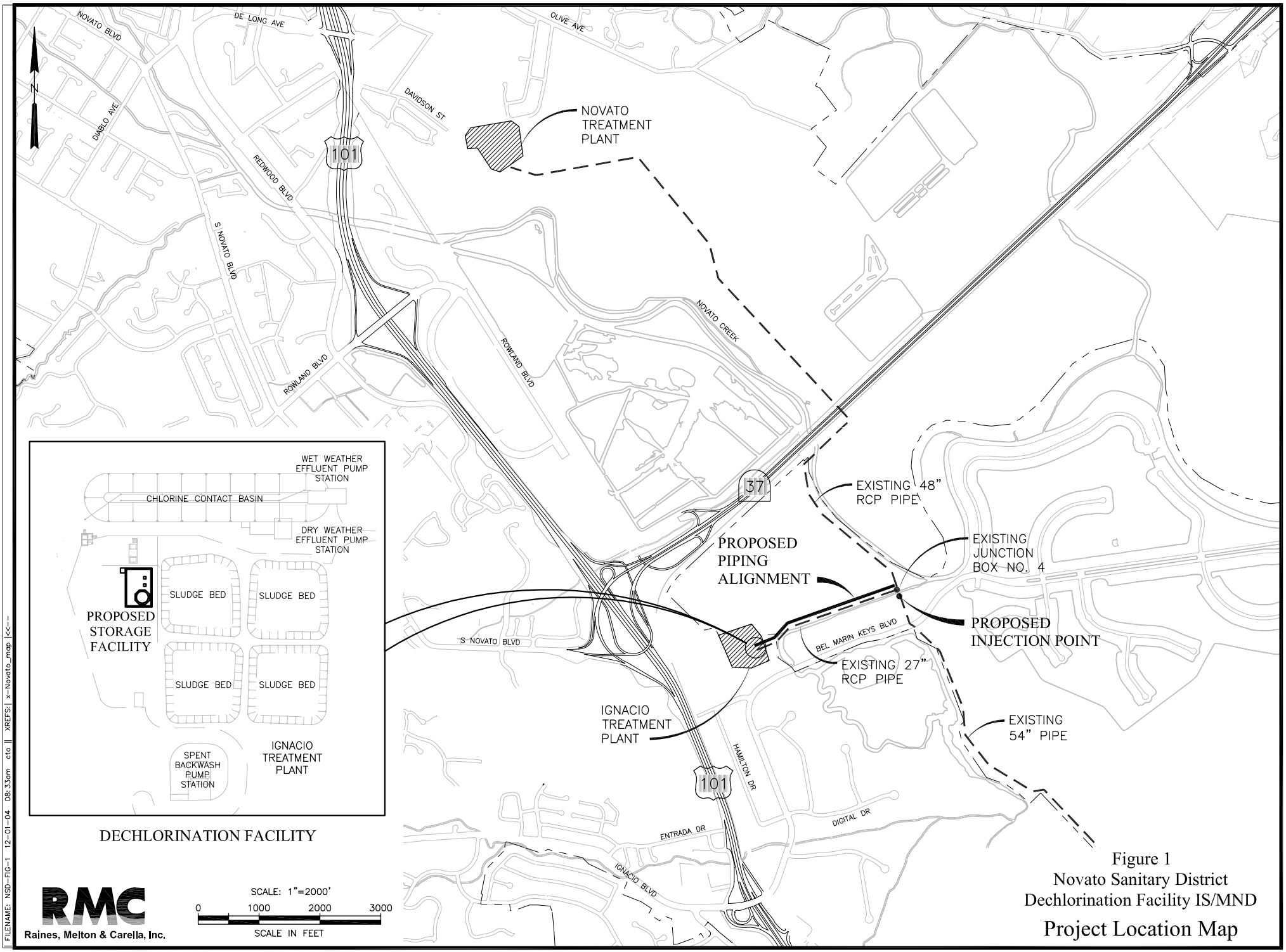


Figure 1
Novato Sanitary District
Dechlorination Facility IS/MND

Project Location Map

FILENAME: NSD-FIG-1 12-01-04 08:33am cto || XREFS: x-Novato_map <<--

Last Saved By: 12-01-04 08:30am

- Cost - The alternatives should have reasonable capital and operating costs
- Reliability - The dechlorination facilities should provide treatment for the full range of treatment plant flows in compliance with all NPDES permit requirements
- Implementable - The existing treatment and dechlorination process must remain in operation during construction.

Each alternative was evaluated with respect to the goals outlined above to develop a recommended alternative. The recommended alternative was Alternative 2: Combined Facilities. Alternative 2 was selected due to lower cost and ease of construction as compared to Alternative 1.

It was determined during predesign that the relocated dechlorination facilities would be in service for at least four years due to the following issues:

- As a result of the ongoing NSD Wastewater Treatment Facility Plan, either treatment plant may be abandoned as a treatment facility by 2008 with treatment of all wastewater being performed at the other plant. At this date, the preferred alternative appears to be combining the treatment at Novato and decommissioning the Ignacio plant. However, that decision will not be finalized until early 2005, after final design is required to be completed on the dechlorination facility relocation project to meet the October 2005 deadline.
- The plant that remains in service will be significantly upgraded to provide the capability to handle all wastewater flows. New dechlorination facilities may be a part of the proposed improvements.

1.3 EXISTING DECHLORINATION FACILITIES

The 48-inch effluent forcemain from NTP and the 27-inch diameter outfall from ITP both discharge to Junction Box 4 (JB4), approximately 2,300 feet to the east of ITP. The combined effluent from both treatment plants then travels from JB4 to the San Pablo Bay via a 54-inch outfall. The existing dechlorination facilities are situated adjacent to this combined outfall.

As a requirement of its NPDES permit, NSD must remove all chlorine residual from treated effluent prior to discharge into San Pablo Bay. Chlorine residual is chlorine remaining in the treated water following disinfection, and is toxic to many forms of aquatic life.

NSD uses sodium bisulfite to dechlorinate the combined effluent from both treatment plants. The existing facilities include two high density polyethylene (HDPE) chemical storage tanks containing a 28% sodium bisulfite solution. Chemical metering pumps (one active and one standby) are used to dose and pump sodium bisulfite out of the tanks. The amount of sodium bisulfite delivered to the outfall is determined by both the flow and chlorine residual concentration in the treated effluent. Higher concentrations of chlorine residual and higher flows in the outfall require higher doses of sodium bisulfite. A propeller flow meter upstream of the dechlorination point is used to determine the flow in the outfall.

The section of the combined outfall adjacent to the chemical storage tanks contains a 125-foot long chemical diffuser. Recirculating pumps draw a small amount of flow from the outfall to

dilute the sodium bisulfite delivered by the chemical metering pumps. This dilute solution is then pumped into the diffuser to be mixed into the outfall flow. A sample tap downstream of the analyzer draws sample water from the dechlorination effluent stream. A chlorine residual analyzer is located at the site to detect chlorine and/or bisulfite levels in the sample water. This data is used to adjust, or trim, the level of sodium bisulfite that is diffused into the outfall.

If NSD constructs relocated dechlorination facilities, the existing dechlorination facilities would remain in operation until the relocated dechlorination facilities are in operation (approximately October 2005). Following completion and start-up testing of the new dechlorination facilities, the Army Corp of Engineers would remove the existing dechlorination facilities as part of the HWRP.

1.4 PROPOSED RELOCATED DECHLORINATION FACILITIES

NSD proposes to relocate its dechlorination chemical storage facilities to the ITP site and the chemical feed point to the point of convergence of the ITP and NTP outfalls (at JB4).

The proposed relocated dechlorination facilities would continue to use a 28% sodium bisulfite solution to dechlorinate the combined effluent from both treatment plants. The components of the relocated dechlorination facilities would be similar to the existing facilities, consisting of a single HDPE sodium bisulfite storage tank, chemical metering pumps, chemical analyzers and a chemical diffusion device.

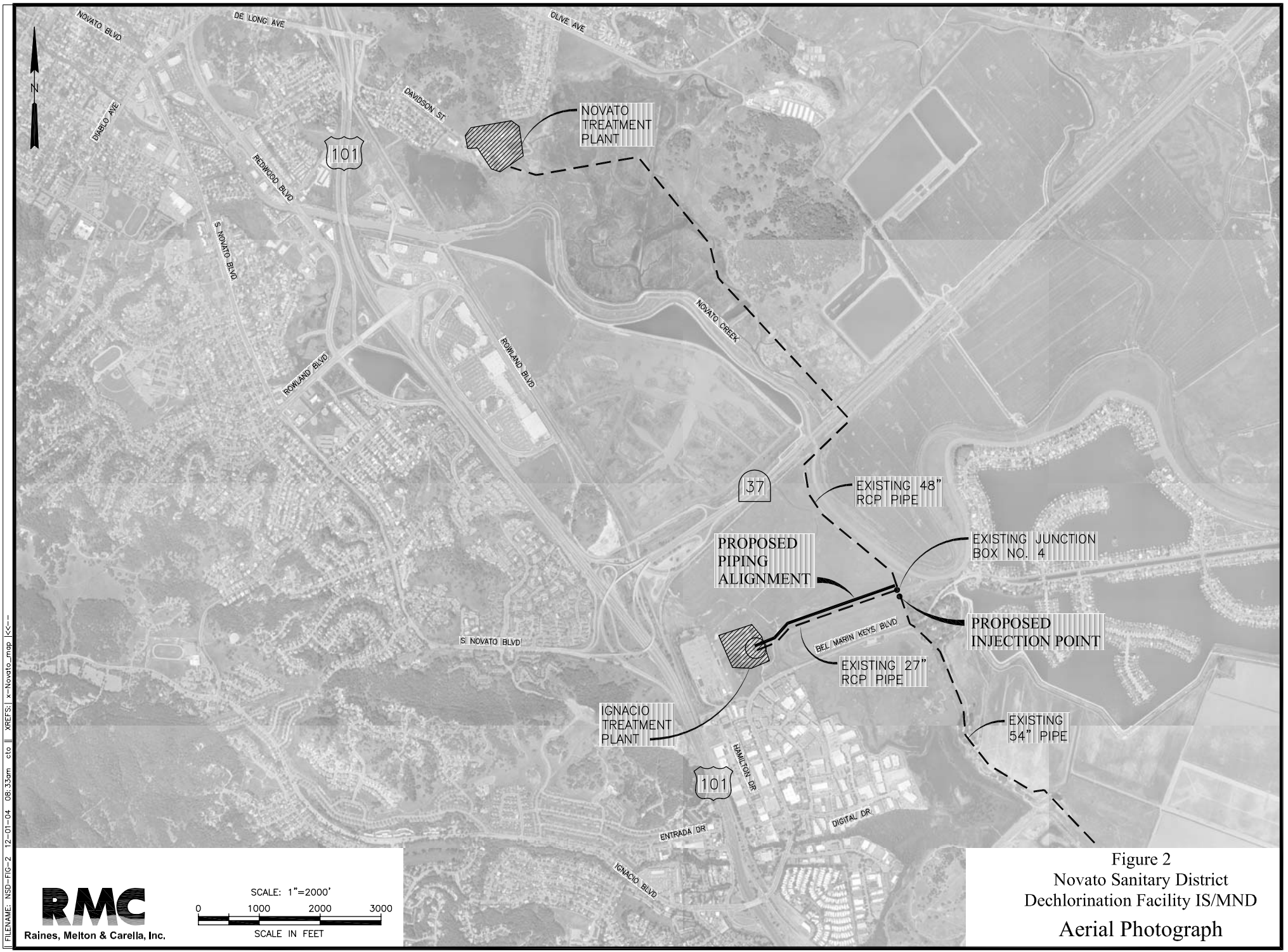
Chemical Storage

The sodium bisulfite storage tank would be located at the ITP site (see Photo 1 in Appendix A). A single 6,500 gallon, single-walled HDPE storage tank would be situated in a presently unoccupied area of the ITP site. The tank would sit on a concrete slab within a 20-foot by 30-foot containment area formed by 2.5-foot tall concrete walls. The volume provided by this containment area is the equivalent to 150% of the tank volume plus 4-inches of rain water. This containment area provides protection against chemical spills and tank failure. Two chemical metering pumps (one active and one standby) would also be housed within the concrete containment area. Any chemical spills or rainwater within the containment area will be routed back to the treatment plant for treatment.

The 6,500-gallon storage tank is expected to require filling every 34 days based on average day usage. Chemical delivery trucks would fill the tank from the ITP main access road.

Dechlorination Piping and Equipment

The chemical metering pumps will be located on the ITP site. These metering pumps will deliver flow from the sodium bisulfite storage tank to the dechlorination point (the point at which sodium bisulfite is injected into the outfall). The dechlorination point would be located directly downstream of the convergence of the NTP and ITP outfalls, at Junction Box 4 (see Figure 2). This location is approximately 2,300 feet east of the ITP site on an NSD easement within privately owned property that is pasture land (see Photo 2 in Appendix A).



RMC
Raines, Melton & Carella, Inc.

SCALE: 1"=2000'
0 1000 2000 3000
SCALE IN FEET

Figure 2
Novato Sanitary District
Dechlorination Facility IS/MND

Aerial Photograph

FILENAME: NSD-FIG-2 12-01-04 08:33am clo || XREFS: x-Novato_map <<--

Last Saved By: 11-30-04 11:16am

Two 1-inch sodium bisulfite feed lines would be routed 2,300 feet to Junction Box 4 to deliver sodium bisulfite from the chemical metering pumps to the dechlorination point. These pipes would roughly follow the alignment of the existing 27-inch outfall from the ITP to Junction Box 4. The lines would be constructed of PVC tubing double contained within a 4-inch Schedule 80 PVC carrier pipe and contain a nylon "pull" rope to facilitate installation of replacement tubing if needed. Double containment reduces the potential for chemical leakage in the event of puncture of the chemical piping. These pipes would be buried at a depth of approximately 3 feet. All of the piping alignment is contained within an existing NSD easement on privately held property.

Three new concrete vaults would be constructed adjacent to Junction Box 4 to facilitate dechlorination (see Photo 3 in Appendix A). One new vault would be constructed upstream of the vault on each of the ITP and NTP outfalls. These vaults would house propeller flow meters that would be used to determine the flow being delivered to Junction Box 4 from each treatment plant. Because the treated water would be dechlorinated after the two flows combine, the flow readings from both flow meters would be totalized to determine the combined flow rate.

The third vault would be located downstream of Junction Box 4. This vault would house a chemical induction unit (CIU). The CIU would diffuse sodium bisulfite solution into the outfall flow. Unlike the existing dechlorination facilities, no separate recirculating pumps or diffuser would be installed in the outfall; the CIU does not require pre-dilution of the chemical stream and provides active mixing of the sodium bisulfite solution into the outfall flow. The power requirements of the CIU are expected to be approximately 10 Hp.

A 5-foot wide by 7-foot long by 8-foot high fiberglass enclosure would be placed on a new concrete pad just to the west of Junction Box 4. This enclosure is no taller than the existing Junction Box 4 structure. The enclosure would house two sample pumps (to draw both pre and post chlorination samples from the outfall) and a chlorine residual analyzer.

Sample Piping

The analyzers housed within the fiberglass enclosure would sample water from the outfall directly upstream of the sodium bisulfite injection point. These samples would be used in conjunction with flow data from the propeller meters to dose sodium bisulfite into the outfall.

Additional sample lines will be required to carry dechlorinated effluent back to NSD's bioassay facilities at the ITP. Bioassay facilities require continuous flow of sample water. These lines would also be used to collect water for grab samples of ammonia and cyanide to test for compliance with NSD's discharge permit. Two 1-inch sample lines would be routed approximately 2,300 feet from Junction Box 4 back to ITP. It is anticipated that this piping will share a pipe trench with the sodium bisulfite feed pipes.

Utilities

The power supply at the ITP is sufficient to power all proposed new equipment. Power supply and control wiring will be routed in Schedule 80 PVC conduits between the ITP site and the Junction Box 4 site, sharing the same trench as the sodium bisulfite feed and sample piping. Due to the temporary nature of the facility (estimated service life of 4 years), the conduits will not be concrete-encased.

Site Access

There is no existing, improved roadway between ITP and Junction Box 4. An all-weather roadway is required for routine operations and maintenance access to the Junction Box 4 site. Operations and maintenance access to the site is expected to be limited to daily inspections of the facility by NSD staff. NSD staff will occasionally need to replace small amounts of calibration chemicals used by the chlorine residual analyzer. These chemicals are contained in small, hand carried vessels and require no special containment.

The proposed all weather access consists of a compacted aggregate based roadway (approximately 8-inches of aggregate base). This roadway would be approximately 2,300 feet in length and 8-feet in width and may have an underlying geotextile fabric to stabilize the aggregate.

The proposed roadway alignment would follow the alignment of the existing 27-inch ITP outfall and easement. This alignment is within an existing 10-ft wide easement held by NSD across privately owned property. The land through which the roadway would be placed is disturbed earth with limited vegetation. It is grazed by cattle and is occasionally used as an access route by NSD vehicles.

1.5 CONSTRUCTION

The project would include the construction of a chemical storage and metering facilities and well as a chemical injection facility. The following types of equipment are expected to be onsite:

- Bulldozer
- Grader
- Backhoe
- Water Trucks
- Dump Trucks
- Electrical Generator

The proposed relocated dechlorination facilities would need to be in operation by October 2005 to meet SCC construction requirements for the HWRP rehabilitation. Construction would begin in March of 2005 and would continue for approximately 8 months.

Modifications to the combined outfall would be limited to the dry weather summer months during which the outfall is not used downstream of JB4. This requires that construction impacting the combined outfall be completed by September 30, 2005.

1.6 DECOMMISSIONING

The relocated facilities may be decommissioned upon completion of permanent dechlorination facilities at either the NPT or ITP, assuming that one of the treatment plants is upgraded to treat all flow from within the NSD service area. Any new facility would be online at least 4 years after the relocated dechlorination facilities would be brought online.

If the relocated facilities are decommissioned, the roadway, all equipment in the proposed vaults, and the fiberglass enclosure at the Junction Box 4 site would either be removed or left in place.

SECTION 2

ENVIRONMENTAL CHECKLIST FORM

1. **Project Title:** Novato Sanitary District Dechlorination Facility Relocation Project

2. **Lead Agency Name and Address:** Novato Sanitary District (NSD)
500 Davidson Street.
Novato, CA 94945

3. **Contact Person and Phone Number:** Sandeep Karkal, Deputy Manager-Engineer
415-892-1694

4. **Project Location:** The proposed project is located at the Ignacio Treatment Plant and an injection site approximately 600 feet north of Bel Marin Keys Boulevard. The portion of the project located at the Ignacio Treatment Plant is on land owned by the Novato Sanitary District and is within the City of Novato. A portion of the project is located in an NSD easement through privately owned property. This portion is located within the City of Novato Sphere of Influence as defined by LAFCO, but is outside the City/Urban Growth Boundary line.

5. **Project Sponsor's Name and Address:** See No. 2, Lead Agency, above.

6. **General Plan Designation:** Community Facilities for the storage site (Novato General Plan). Agriculture and Conservation/Bayland Corridor for the pipeline and injection site(Marin Countywide Plan, 2004)

7. **Zoning:** Community Facilities/Agriculture and Conservation

8. **Description of Project:** The project will relocate a dechlorination facility. The project would construct a dechlorination chemical storage facility consisting of a tank and metering pumps at the Ignacio treatment plant (ITP), an injection point on the combined outfall from the Ignacio and Novato treatment plants (NTP), and interconnecting piping. The dechlorination facility will continue to use sodium bisulfite to remove chlorine residual from the treated effluent from the Ignacio and Novato treatment plants before it is discharged to San Pablo Bay.

9. **Surrounding Land Uses and Setting.** Pasture lands. The setting is rural, with large expanses of open lands in pasture.

10. **Other public agencies whose approval may be required:**
    - State Coastal Conservancy Commission
    - San Francisco Regional Water Quality Control Board
    - California Department of Fish and Game
    - City of Novato
    - County of Marin

Environmental Factors Potentially Affected:

The environmental factors checked below would be potentially affected by this project. Mitigation measures identified in this document would reduce all potential impacts to a less-than-significant level.

☐ Aesthetics	☐ Agriculture Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Geology / Soils
☒ Hazards & Hazardous Materials	☒ Hydrology / Water Quality	☐ Land Use / Planning
☐ Mineral Resources	☒ Noise	☐ Population / Housing
☐ Public Services	☐ Recreation	☒ Transportation / Traffic
☐ Utilities / Service Systems	☐ Mandatory Findings of Significance	

DETERMINATION: (To be completed by Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

_____	_____
Signature	Date
Beverly B. James	Manager-Engineer
Printed Name	Title

POTENTIAL ENVIRONMENTAL IMPACTS:

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
2.1 AESTHETICS –				
Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

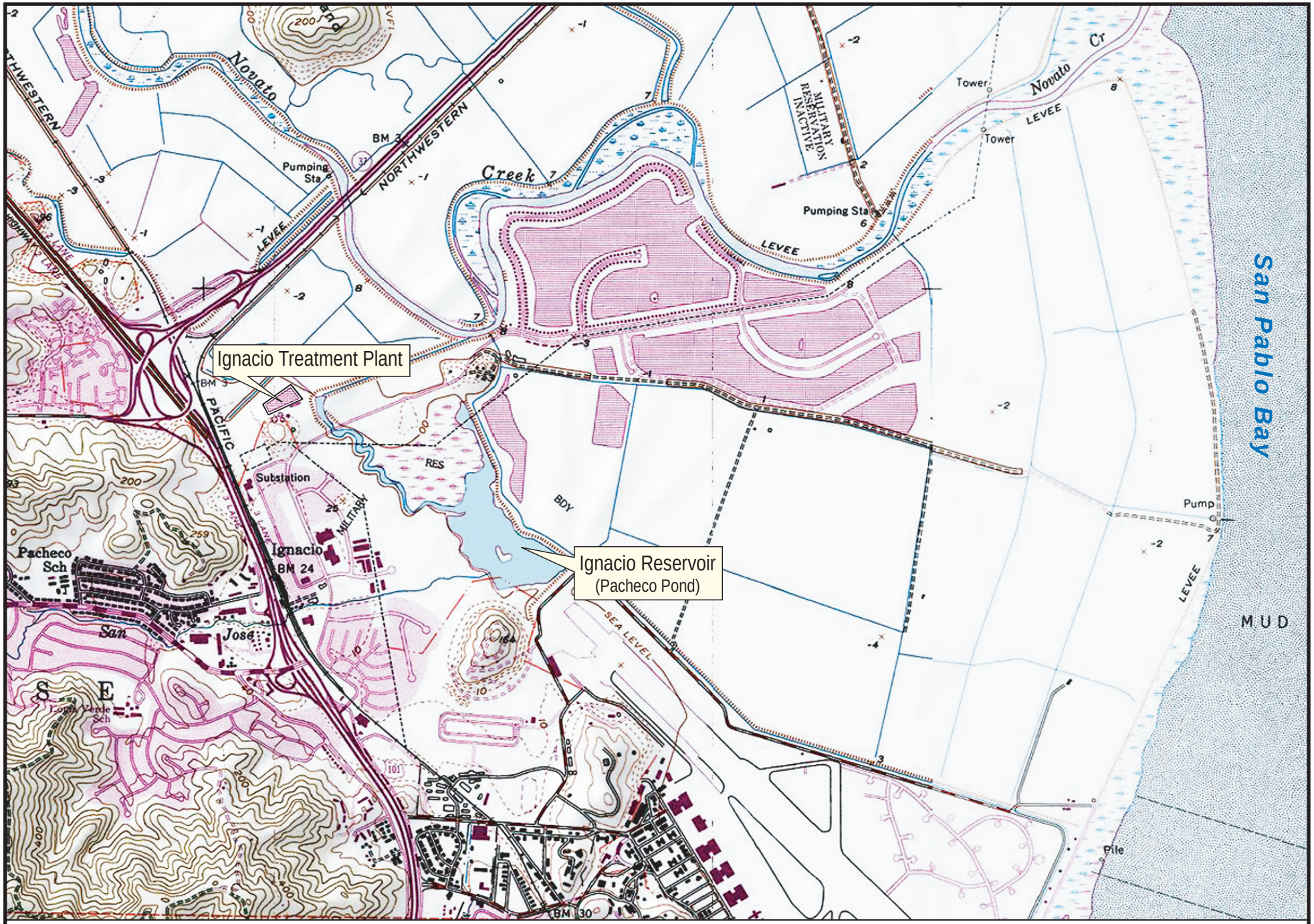
Discussion

a – d Visually, the project area for the proposed storage facility is dominated by the ITP which has the existing visual character of wastewater treatment facilities. The single 6,200 gallon storage tank would be approximately 11 feet tall and would be located adjacent to existing concrete structures 20 to 25 feet tall.

The project area at the injection site is dominated by non-irrigated pasture, the existing 8 ft tall concrete structure containing a shutoff valve, and the dike adjacent to the constructed outflow channel from Ignacio Reservoir (Pacheco Pond) (see Figure 3). A small prefabricated building approximately 5 feet wide, 7 feet long, and 8 feet tall would be constructed at the injection site. It will be screened from view by the existing dike at the Ignacio Reservoir outflow channel. Neither the storage facility nor the injection site is visible from vehicles on Highway 101 which is located approximately 4,000 feet to the west, Highway 37, which is located approximately 3,000 feet north, or from vehicles on Bel Marin Keys Boulevard, which is located approximately 600 feet south. According to the Novato General Plan (2002), the injection site is designated a scenic conservation area (EN-Map3).

The sodium bisulfite feed and sample pipes connecting the storage facility and the injection site would be buried under the pasture and there would be no long-term impact to the scenic quality of the area.

Localized exterior lighting would be added at the storage facility area within the ITP site for personnel safety. There will be no exterior lighting at the injection site, however outlets will be



RMC
Raines, Melton & Carella, Inc.

Figure 3
Novato Sanitary District
Topographic Map and Water Features

provided for portable lighting if needed for nighttime repairs. The proposed storage facility site is in a developed area with a substantial existing light source. The contribution of light and glare from the storage facility would be consistent with the existing light source at the ITP but would be considered a potentially significant impact. However, the implementation of Mitigation Measure AES-1, shielding and orientation of lights downward, would reduce potential impacts to a less than significant level.

Mitigation Measures

Measure AES-1: NSD shall ensure that all permanent exterior lighting is directed downward and oriented to insure that diffuse light does not affect surrounding properties. In addition, highly reflective building materials and/or finishes shall not be used in the designs for proposed structures.

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
2.2 AGRICULTURE RESOURCES				
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒

Discussion

a – c The proposed piping and injection site are pasture land. There are no Prime, Unique or Statewide important farmlands within the project area. The storage facility would be constructed within the boundaries of the ITP. The injection facilities would be located within the existing easement over the top of the outfall pipelines. Since the land where the facilities would be located will not be removed from agricultural use, construction of the facilities would not conflict with Williamson Act contracts or agricultural zoning.

Mitigation Measures

None required or recommended.

2.3 AIR QUALITY

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Discussion

a – c The project site is located within the nine-county San Francisco Bay Area Air Basin (Air Basin). The entire Air Basin is designated as "nonattainment" with respect to the state and national standards for ozone, and with respect to the state PM-10 standard (California Air Resources Board [CARB], 2003). Air quality plans have been adopted that outline measures to achieve attainment status for these pollutants. The Air Basin falls under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD), the regional agency empowered to regulate air pollutant emissions from stationary sources in the Bay Area. BAAQMD regulates air quality through its permit authority over most types of stationary emission sources and through its planning and review activities. Air pollutant emissions resulting from the implementation of the proposed project would be limited to construction phase emissions (storage facility, piping, and

injection site). Project construction would generate fugitive dust[1] (including particulate matter less than 10 microns in size or PM-10) and other criteria air pollutants, during ground disturbing activities for the storage facility and pipeline installation (primarily in the pasture when the ground is dry), construction equipment exhaust and haul truck trips, and related construction worker commute trips. The BAAQMD recommends that determination of significance with respect to construction impacts be based not on quantification of emissions and comparison to thresholds, but upon inclusion of feasible control measures for PM-10. Measure AQ-1 provides for the preparation of a dust abatement program to reduce PM-10 generation to a less-than-significant level. This measure is consistent with the Novato General Plan EN Program 34.3: Continue to require and enforce a dust emissions control plan for construction.

BAAQMD CEQA Guidelines recognize that construction equipment emits ozone precursors, but indicate that such emissions are included in the emission inventory that provides the basis for regional air quality plans, and that construction emissions are not expected to impede attainment of ozone standards in the Bay Area (BAAQMD, 1999).

Long-term emissions would be associated with worker vehicle trips to and from the injection site, which would be infrequent in nature and limited to maintenance of project facilities; emissions related to these trips would be less-than-significant. The pipelines would not require maintenance once installed.

d – e Sensitive receptors are schools, hospitals, and convalescent homes, generally where young and the elderly congregate who are more susceptible to pollutants as well as residences. The nearest residence is in the Bel Marin Keys area approximately 1,000 feet from the injection site. The estimated duration of active construction along the pipelines and the injection site is three to four months. Given there are no residences within close proximity of the site, a substantial number of people would not be affected by air emission or odors associated with the project. This impact is less-than-significant.

Mitigation Measures

The following mitigation measure is from the *BAAQMD's CEQA Guidelines* (BAAQMD, 1999) for feasible control measures for construction emissions of PM-10. Implementation of this mitigation measure would reduce potentially significant air quality impacts to less-than-significant levels.

Measure AQ-1: The construction contractor shall implement a dust abatement program, which would include the following elements:

- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials, *or* require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer.

1 "Fugitive" emissions generally refer to those emissions that are released to the atmosphere by some means other than through a stack or tailpipe.

- Apply water three times daily or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets;

2.4 BIOLOGICAL RESOURCES

Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community				

Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion

a Based on a review of the California Natural Diversity Database (CNDDB) (CDFG 2004) and the U.S. Fish and Wildlife Service lists for the Novato and eight surrounding USGS 7.5-minute quadrangles (USFWS 2004), as well as a biological reconnaissance site visit (May and Associates, Inc., November 15, 2004), the following is a discussion of potential impacts to candidate, sensitive or special status species. Table 1 in Appendix C provides the results of the above database searches for special status species with potential to occur in habitats similar to those found on or near the project site.

Nesting Birds

While most breeding bird species are not afforded "special status" by the California Department of Fish and Game (CDFG) or the U.S. Fish and Wildlife Service (USFWS), all resident and migratory birds are protected by the federal Migratory Bird Treaty Act (MBTA), and therefore meet CEQA criteria as "sensitive" species.

Nesting habitat for breeding birds was identified in the disturbed, grazed annual grasslands along the pipeline and road corridor and at the proposed dechlorination facility site. Potential nesting habitat for common bird species such as killdeer, western meadowlark, and horned lark, occurs in grasslands, along roads and other ruderal habitats along and near the pipeline/road corridor and proposed dechlorination facility site. Nesting habitat for burrowing owl (*Athene cunicularia* – a state species of special concern and a federal species of concern) was not identified during a survey of the project area due to the absence of ground squirrel burrows or other suitable nesting cavities necessary for the species (May and Associates, Inc., November 15, 2004). No emergent wetland vegetation, scrub, or riparian vegetation occurs along the Ignacio Reservoir outflow channel parallel to the pipeline/road corridor, and, therefore, does not provide any additional nesting habitat for bird species. Trees that may provide nesting habitat for bird species are either located more than 500 feet from the work area (such as a grove of blue gum eucalyptus and oaks on a knoll southeast of the outflow channel and the work area), or are located on or directly adjacent to the Ignacio Treatment Facility and, therefore, are disturbed by noise and other human activities frequently enough that any birds nesting in such trees would be acclimated to such disturbances and are not likely to be affected by the proposed work activities.

Project activities, such as earthmoving, grading, and trenching, during the breeding season (March 15 to August 15) have the potential to result in direct mortality of upland nesting bird species in the project vicinity. In addition, human disturbances and construction noise have the potential to cause nest abandonment and death of young or loss of reproductive potential at active nests located near project activities. If project implementation occurs between March 15 to August 15, then the measures listed under Mitigation Measure BR-1 should be executed to reduce potential impacts to breeding birds to a less-than-significant level. If possible, ground-disturbance activities (such as trenching) should begin before March 15 and should occur continuously throughout the

construction period or at least through the nesting season (August 15) to prevent bird species from establishing nests within the work area.

Other Special Status Wildlife

The pipeline/road corridor and proposed dechlorination facility site are located within 20 to 60 feet of the Ignacio Reservoir outflow channel running between Ignacio Reservoir (Pacheco Pond) and Novato Creek. The limited salt marsh vegetation (such as salt grass, scattered patches of pickleweed) growing along the outflow channel edges is not considered sufficient or suitable as habitat for special status bird species that rely on salt marsh habitats, such as California clapper rail (*Rallus longirostris obsoletus*), black rail (*Laterallus jamaicensis coturniculus*), or salt marsh harvest mouse (*Reithrodontomys raviventris*). The outflow channel does support potential aquatic habitat for other special status wildlife species, including Ricksecker's water scavenger beetle (*Hydrochara rickseckeri*), tidewater goby (*Eucyclogobius newberryi*), delta smelt (*Hypomesus transpacificus*), Pacific lamprey (*Lampetra tridentata*), Sacramento splittail (*Pogonichthys macrolepidotus*), and northwestern pond turtle (*Clemmys marmorata marmorata*). These species are unlikely to occur in the outflow channel given regional occurrence data, known species distributions, and habitat preferences. Even if they did occur in the channel, these species would not be affected by project activities because work will not occur within the channel, and because BMPs will be used during construction activities to prevent erosion and siltation.

The artificial water treatment ponds on the ITP property are considered potentially suitable, but low quality habitat for the California red-legged frog (*Rana aurora draytonii*). The habitat is considered low quality because it does not support emergent vegetation, making breeding highly unlikely. In addition, the nearest documented occurrence of California red-legged frog is approximately 5 miles northeast of the project site (CNDDB 2004), making migration of frogs to the site unlikely based on physical barriers (i.e. Highway 37) between the site and the closest known occurrence.

Proposed project activities would not impact these ponds; activities would disturb upland habitat adjacent to the ponds, but this habitat is highly disturbed as it is on the active ITP property. Due to the lack of California red-legged frog sightings in the local project vicinity, the low quality of the aquatic habitat in the water treatment ponds, and the low quality of the surrounding upland habitat in the areas that would be disturbed, no impacts to the California red-legged frog are expected.

Special Status Plants

The proposed pipeline/road alignment and dechlorination facility site are considered unlikely to support special status plant species. The project area was historically altered during the creation of the existing treatment facility and the levee along the outflow channel. The habitat that will be affected by the project is grazed, non-native annual grassland dominated by non-native annual grasses and forbs such as yellow star thistle (*Centaurea solstitialis*), Italian ryegrass (*Lolium multiflorum*) and Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*) along a constructed levee which has been compacted by occasional vehicular travel by ITP personnel. Based on the highly disturbed nature of vegetation at the site, and the lack of known special status plant species

occurrences in the project vicinity, it appears unlikely to support special status plant species and, therefore, impacts to special status plant species are not expected from the project.

b No riparian habitat or other sensitive natural communities occur at or in the vicinity of the proposed pipeline/road corridor or dechlorination facility. Therefore, the project would not affect any riparian habitat or sensitive natural communities.

c The proposed pipeline/road alignment and dechlorination facility would be located exclusively in upland habitats and would not result in the fill of any wetlands. Although wetlands occur adjacent to the work area (in the Ignacio Reservoir (Pacheco Pond) constructed outflow channel, in a wetland swale north of and perpendicular to the pipeline/road alignment near the ITP, and in an area immediately south of and adjacent to the elevated dirt road at ITP) these wetlands would be protected from project impacts through project BMPs that would avoid erosion or sedimentation and would restrict work and staging areas to upland areas.

d The project site may provide an incidental migratory route for common wildlife species that are found throughout the project region from the grazed pastureland to the outflow channel. Although project construction activities may cause some disturbance, the effect would be minimal and temporary, and would not block all access to the channel. Following construction activities, the project area remains a viable migratory route to the outflow channel, as travel on the gravel road would be infrequent (one vehicle trip per day). In addition, after approximately four years, the proposed pipelines and storage facility may be abandoned, allowing for undisturbed use of the area for common wildlife species.

e The Novato General Plan (2002) notes that "environmental documentation will screen for the Federal Candidate Species, plants listed on lists 1A, 1B, or 2 of the California Native Plant Society (CNPS), inventory of rare and endangered vascular plants of California and animals designated by CDFG as species of special concern or their current equivalent." The response to item (a) above complies with this policy; thus, there is no impact.

EN Program 1.1 (City of Novato, 2002) calls for the establishment of a Stream Protection Zone. The width of the Stream Protection Zone would include the watercourse itself between the tops of the banks (existing height) and a strip of land extending 50 feet laterally outward from the top of each bank. A permit is required for any excavation, filling, or grading; removal or planting of vegetation; construction, alteration, or removal of any structure; or alteration of any embankment that is proposed in the Stream Protection Zone. Permits shall include mitigations to protect wildlife and to protect, enhance, and restore native vegetation. The permit shall take into account aesthetic, scenic, environmental, and recreational impacts or benefits. The proposed pipeline/road corridor and dechlorination facility occur within 20 to 60 feet of the Ignacio Reservoir outflow channel but both the outflow channel and most of the proposed pipeline are outside of the City of Novato limits. However since a small portion of the pipeline crosses into City limits near the ITP (see Figure 4), Mitigation Measure BR-2 is proposed which may require the acquisition of a permit from the City of Novato for grading and construction of a structure within the Stream Protection Zone. This would reduce impacts to the City's Stream Protection Zone to less-than-significant.

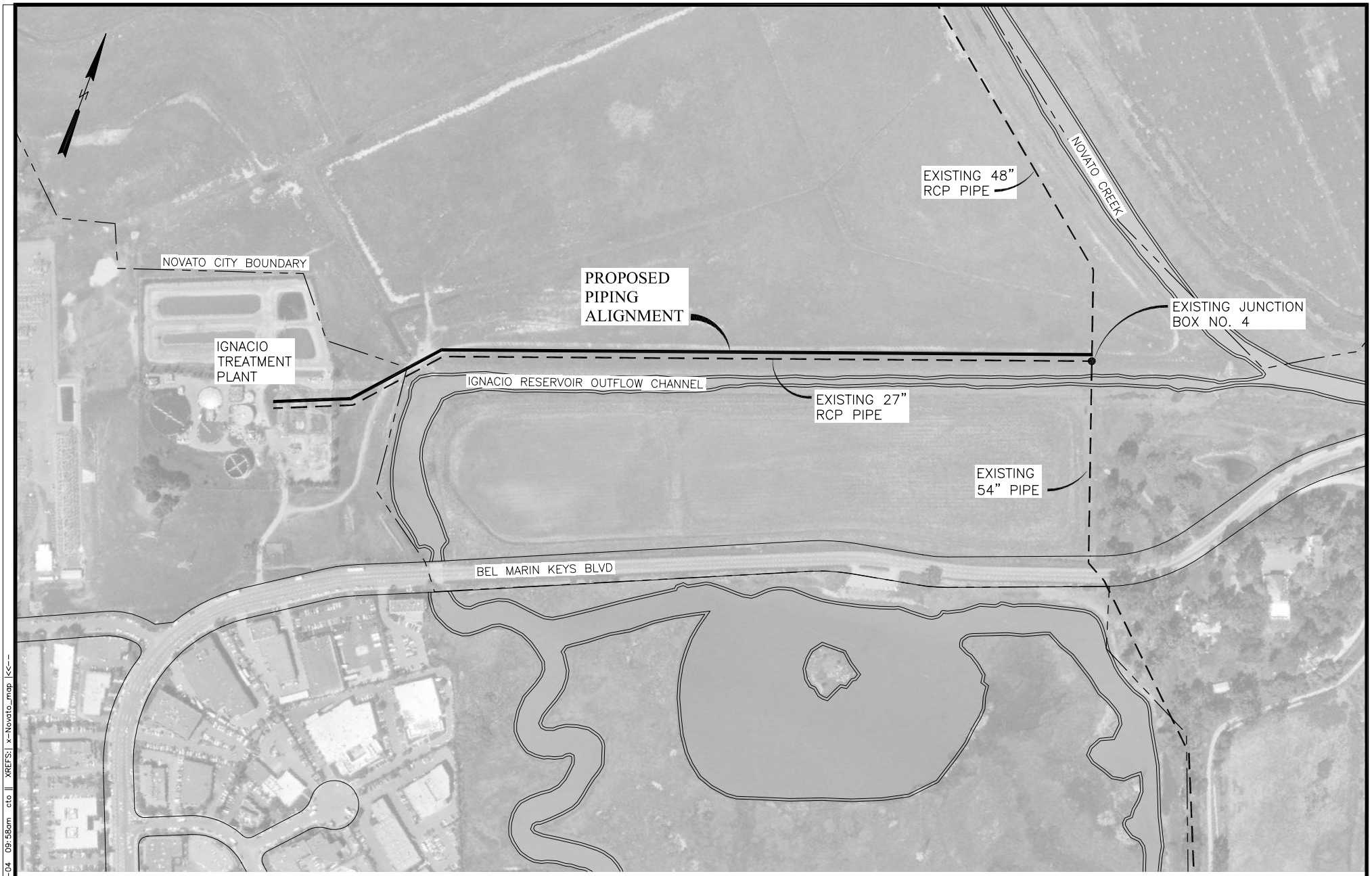


Figure 4
Novato Sanitary District
Dechlorination Facility IS/MND

Ignacio Reservoir (Pacheco Pond)
Outflow Channel

RMC
Raines, Melton & Carella, Inc.

FILENAME: NSD-FIG-4 12-02-04 09:58am cto || XREFS: x-Novato_map |<<--

Last Saved By: 12-02-04 09:55am

f No such plans are applicable to the project area; therefore, there is no impact.

Mitigation Measures

Implementation of the following mitigation measure would reduce potential project impacts to breeding birds to a less-than-significant level.

> **Measure BR-1 –** If possible, ground-disturbance activities (such as trenching) should begin before March 15 and should occur continuously throughout the construction period or at least through the nesting season (August 15) to prevent bird species from establishing nests within the work area. However, if construction begins between March 15 and August 15, NSD should implement the following elements prior to bird nesting season and the start of ground-disturbing construction:
>
> > A qualified wildlife biologist will conduct pre-construction surveys of all potential nesting habitat within 250 feet of construction activities. If active nests are found during pre-construction surveys, a 250-foot buffer zone would be created around nests of sensitive birds protected by the MBTA or special status birds. These buffer distances are consistent with CDFG avoidance guidelines; however, they may be modified on a case-by-case basis in coordination with CDFG if site conditions warrant such changes. If pre-construction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further mitigation will be required.

Implementation of the following mitigation measure would reduce potential project impacts to the City's Stream Protection Zone to a less-than-significant level.

> **Measure BR-2** – If required by the City of Novato, NSD shall acquire a Stream Protection Zone permit for the proposed project that would include mitigation measure BR-1 requiring pre-construction surveys for nesting bird species and implementation of project BMPs to protect water quality of the adjacent outflow channel (Measure WQ-1).

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
2.5 CULTURAL RESOURCES				
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleonotological resource or site or unique geologic feature?	☐	☐	☐	☒

d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

Discussion

a – b Cultural resource evaluations have been completed within the last year for other projects in the near vicinity of the dechlorination facilities, i.e. the North Marin Water District's Recycled Water Treatment Facility and Pipeline mitigated negative declaration (ESA 2003) which included a recycled water treatment facility and pipeline across the irrigated pastures just north of Highway 37 approximately one mile from the dechlorination facility; and the administrative draft Novato Sanitary District Wastewater Facility Master Plan Project Environmental Impact Report, which included construction of facilities at the ITP and a pipeline north to the Novato treatment plant. The two documents concluded that there were no historic or archaeological resources that would be affected by those two projects. (WSA, 2003). There are known prehistoric sites in the area; however, it is considered remote that these sites would be disturbed during construction activities. For the recycled water treatment facility project, the Native American Heritage Commission (NAHC) and 'most likely descendents' (MLDs) were contacted in accordance with the requirements of the State Water Resources Control Board environmental review process guidelines for state revolving fund applications. The NAHC reported that "a record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area" (WSA, 2003). No additional information was forthcoming from MLDs. Although no significant prehistoric, historic, sacred sites, or unrecorded sites were discovered, a possibility exists that ground disturbing activities may uncover such resources. The potential for significant adverse impacts to unknown cultural resources would be minimized with implementation of Mitigation Measure CR-1.

The Novato General Plan (2002) Community Identity Policy 30 identifies several programs to protect archaeological resources. The response to item (a - b) above and the Mitigation Measure CR-1 complies with this policy.

c There are no known paleontological resources at the site.

d Before land reclamation in the 19th century, the project area was salt marsh. Fourteen previous archaeological surveys have been conducted in portions of the project area, and there are four known sites within one-half mile (WSA, 2003). No burials were associated with these sites (WSA, 2003); thus, it is unlikely to encounter human burials in this area.

Mitigation Measure

Implementation of the following mitigation measure would reduce the potential for disturbance of cultural resources to a less-than-significant level.

> **Measure CR-1:** In accordance with CEQA subsection 15064.5 (f), should any previously unknown historic or prehistoric resources, including but not limited to charcoal, obsidian or chert

flakes, grinding bowls, shell fragments, bone, pockets or dark, friable soils, glass, metal, ceramics, wood, or similar debris, be discovered during grading, trenching, or other on-site excavation(s), earthwork within 100 feet of these materials shall be stopped until a professional archaeologist certified by the Registry of Professional Archaeologists has had an opportunity to evaluate the significance of the find and suggest appropriate mitigation measure(s), as determined necessary.

2.6 GEOLOGY AND SOILS

Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1997), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Discussion

a – The project involves the construction of a sodium bisulfite storage and injection facility and inter-connecting small-diameter piping and; does not involve the construction of housing, commercial, or industrial facilities where people would congregate; thus, there is no potential for exposing the public to the hazards listed. ABAG (2003), shows the project area as being in a high liquefaction region and subject to very strong shaking (magnitude VIII) if an earthquake occurs on the San Andreas Fault. The City of Novato is within Seismic Zone 4 (Novato General Plan, 2002). The seismic zones are in order of magnitude with Seismic Zone 4 being the area of greatest risk. The Uniform Building Code (UBC) requires a higher safety factor for construction in Seismic Zone 4. The storage facility would be constructed to the latest design standards for a Seismic Zone 4 area; therefore, the impact is less-than-significant.

According to the Novato General Plan (2002), the project area is not within a mapped landslide area (SF-Map 2); therefore there is no impact.

b The soils underlying the ITP storage site consist of fill material. According to the Natural Resources Conservation Service, the irrigated pasture soils are Reyes Clay. Construction activities involving soil disturbance, such as excavation, stockpiling, and trenching, could result in increased soil erosion by exposing the soils to wind and water. Implementation of standard engineering erosion-control techniques (see Measure WQ-1, in Section 2.8, Hydrology and Water Quality) would reduce soil erosion to less-than-significant levels.

c – d The proposed storage site would be constructed on engineered fill and according to the requirements of the Uniform Building Code; thus, there is a less-than-significant impact associated with the project.

e No septic tanks are proposed for the project; therefore, there are no impacts.

Mitigation Measures

None required or recommended.

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*

2.7 HAZARDS AND HAZARDOUS MATERIALS

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset				

and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Discussion

a – b Construction activities would involve the use of certain potentially hazardous materials such as paints, fuels, oils, and solvents. These materials generally would be used for excavation equipment, generators, and other construction equipment, and would be contained within vessels engineered for safe storage. Spills during onsite fueling of equipment or an upset condition (e.g., puncture of a fuel tank through operator error) could result in a release of fuel or oils into the environment. Spills would most likely sink into the ground.

Storage of large quantities of these materials at the construction site is not anticipated; however, the uncontrolled release of these materials would be a potentially significant impact to the environment. Measure HM-1 requires that a Substance Control Program (Program) be developed and given to all contractors working on the project, and would reduce impacts from hazardous materials release to less-than-significant levels. The purpose of the Program is to provide on-site construction personnel, environmental compliance monitors, and regulatory agencies with a detailed description

of hazardous materials management, spill prevention, and spill response/cleanup measures associated with the construction of project elements.

The 2002 Novato General Plan identifies an objective to reduce hazards of transportation, storage and disposal of hazardous wastes and hazardous materials (SF-Objective 8), but a specific ordinance has not been developed. However, permits from the San Francisco Regional Water Quality Control Board and the BAAQMD are required to operate the dechlorination facility. Long term operation of the proposed dechlorination facility would include the storage and use of sodium bisulfite. Sodium bisulfite is used to remove chlorine residual from the treated effluent before it is discharged to San Pablo Bay. According to the Material Safety Data Sheet for sodium bisulfite, it is harmful if swallowed or inhaled, may cause allergic respiratory reaction in sensitive individuals, and exposure causes irritation to skin, eyes and respiratory tract. This material is not flammable. Sodium bisulfite solution would be handled and stored in compliance with the most recent applicable laws and regulations that reduce the potential for a release of chemicals. Specific design features of the chemical storage containment and chemical feed lines that increase the safe handling of hazardous substances at the facility include:

- secondary containment for the sodium bisulfite storage and delivery system;
- modernized control and chemical feed systems;
- secondary containment for the chemical feed lines;
- adequate separation of incompatible chemicals; and,
- design of all chemical handling facilities to minimize or eliminate the risk of damage from earthquakes or other natural disasters.

These improvements would off-set any increased potential for spills due to the proposed storage of hazardous materials that would be used as part of the proposed project. In addition, NSD has in place emergency response procedures that are included as part of their Hazardous Materials Business Plan (as required by CCR Title 6.95, Section 25500) and Spill Control and Countermeasure Plan (as required by CFR, Title 40, Section 112.7). These plans would be updated to reflect the storage of sodium bisulfite at the ITP. Implementation of Measure HM-2 would reduce impacts from hazardous materials release to a less-than-significant level.

c The nearest school, the Marin Head Start program, Hamilton Campus is located approximately 1.1 miles south of the proposed dechlorination site. Since the school is over one-quarter mile away, there are no impacts.

d The project site is not listed in the "Cortese List", a hazardous waste and substances sites list, prepared by the California Department of Toxic Substances Control, pursuant to Government Code Section 65962.5 (2003). In addition to the "Cortese List", the State Water Resources Control Board website was checked for information on underground storage tanks (UST) and leaking underground fuel tanks (LUFT). There is one record for USTs in the Bel Marin Keys area approximately 0.3

miles from the ITP. There are three records for closed LUFTs in the Bel Marin Keys area approximately 0.7 miles from the ITP but they will not be affected by the dechlorination project.

e – f There are no airports located within two miles of the project site; thus, there is no impact.

g Routine operation of the dechlorination facility would not be expected to interfere with an emergency response plan or emergency evacuation plan. The storage site is located within the ITP boundaries and the injection site is approximately 600 feet north of Bel Marin Keys Blvd.

h Although the injection site is located in a designated Conservation area, it is not a habitable structure and therefore would not expose people to wildfire risks. No impact is anticipated.

Mitigation Measures

Implementation of the following mitigation measures would reduce the potential for the release of hazardous materials to a less-than-significant level.

Measure HM-1: Substance Control Program. Handling and storage of fuels and other flammable materials is governed by the California Occupational Safety and Health Administration (CAL/OSHA) standards for fire protection and prevention. These measures include appropriate storage of flammable liquids and prohibition of open flames within 50 feet of flammable storage areas. Construction documents will include a Substance Control Program for construction activities to reduce potentially significant impacts to water quality caused by a chemical spill. This program will require safe collection and disposal of hazardous substances generated during construction activities, and will include an Emergency Response Program to ensure quick and safe cleanup of accidental spills.

Measure HM-2: Proposed facilities would, by law, conform to appropriate regulations and statutes from the federal, state and local agencies. Any new or additional chemical storage facilities would be designed and constructed to conform to all appropriate regulations including providing secondary containment and testing of pressurized containers. All new or retrofitted facilities shall be added to NSD's Hazardous Materials Business Plan.

2.8 HYDROLOGY AND WATER QUALITY

Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion of siltation on- or off-site?	☐	☐	☐	☒
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☐	☒
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation of seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion

a) As noted in Section 2.7 Hazards and Hazardous Materials, there is a potential for release of substances, which may affect water quality. Measure HM-1 reduces this impact to less-than-significant. Earth disturbing activities associated with treatment facility and open-cut pipeline installation could contribute to soil erosion and a subsequent degradation in water quality. Implementation of standard erosion control techniques during project construction activities (see Measure WQ-1) would reduce potential water quality impacts to less-than-significant levels. A formal Storm Water Pollution Prevention Plan (SWPPP) is not required for this project because the total area of disturbance would be less than one acre; however, Best Management Practices (BMPs) as required by Measure WQ-1 for erosion control would avoid potential erosion and sedimentation to storm drains and/or receiving waters.

Operation of the proposed dechlorination facility would be conducted in accordance with all applicable federal and state requirements. The major federal legislation governing the water quality aspects of the proposed project is the Clean Water Act, as amended by the Water Quality Act of 1987. The State of California's Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code) provides the basis for water quality regulation within California. The State Water Resources Control Board (SWRCB) administers water rights, water pollution control, and water quality functions throughout the state, while the Regional Water Quality Control Board (RWQCB) conducts planning, permitting, and enforcement activities.

b The project would not use groundwater, and would increase the amount of impervious surface within the site of an existing WWTP by a small amount (approximately 0.01 acre). The project is not located in a groundwater recharge area; therefore, the project would not have an impact.

c – e The proposed dechlorination facility would convert approximately 0.01 acre of open ground within the site of an existing WWTP to impervious surface. The pipeline would be installed within an existing easement through non-irrigated pasture. The construction of the dechlorination facility would not substantially alter the existing drainage patterns in the project vicinity. In addition, the relatively small amount of impermeable surface that would result would not significantly increase stormwater runoff exceeding the local storm drainage facilities. The proposed project would thus, have no impacts on these environmental effects.

f The project preserves NSD's ability to dechlorinate treated effluent before it is discharged to San Pablo Bay. There is no change in water quality or quantity discharged to San Pablo Bay. There will be no discharge to streams and no impact to stream water quality.

g – h The project does not propose homes or other habitable structures within the 100-year flood boundary. Construction of the dechlorination facility would not significantly impede or redirect flood flows. According to the Novato General Plan (2002), the area comprising the dechlorination facility is in the 100-year floodplain.

i As previously noted, the project does not propose structures where people congregate; thus, the project would not expose people or structures to flooding. The project does not propose any water impoundments. Therefore, there is no impact.

j The project area is not subject to seiches, tsunamis, or mudflows, and no impacts are anticipated.

Mitigation Measures

Measure WQ-1: Best Management Practices (BMPs) should be implemented to reduce impacts to less-than-significant levels.

The NSD should require contractors to implement BMPs for construction activities as specified by the California Storm Water Best Management Practices Handbook (Stormwater Quality Task Force, 1993) and/or the Manual of Standards for Erosion and Sediment Control Measures (ABAG, 2004. The BMPs include measures guiding the management and operation of construction sites to control and minimize the potential contribution of pollutants to storm runoff from these areas. These measures address procedures for controlling erosion and sedimentation and managing all aspects of the construction process to ensure control of potential water pollution sources. Erosion and sedimentation control practices typically include:

- installation of silt fencing and/or straw wattle and,
- runoff control to limit increases in sediment in storm water runoff (e.g., straw bales, silt fences, check dams, geofabrics, drainage swales, and sand bag dikes).

2.9 LAND USE AND PLANNING

Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Discussion

a The proposed dechlorination storage site is located partly on the Novato Sanitary District's property. The injection site and piping are located outside of the City's urban growth boundary on an existing easement through private property consisting of pasture land (see Section 1) and would not physically divide an established community; therefore, there is no impact.

b The storage site is zoned as Community Facilities (Novato General Plan) and the injection site and piping areas are designated Agriculture and Conservation (AGC-3) by the Marin Countywide Plan (Map 3-36-1.1). According to the Marin Countywide Plan, 2004, AGC-3 zoning allows one housing unit per 2-10 acres of land and county zoning encourages agricultural preservation. The piping through the pasture would be built underground. The pastures would remain open space to fulfill their agricultural function.

c There is no habitat conservation plan in effect in the project vicinity.

Mitigation Measures

None required or recommended.

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
2.10 MINERAL RESOURCES				
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Discussion

a – b California Geological Survey (formally Division of Mines and Geology) has classified lands within the San Francisco-Monterey Bay region into Mineral Resource Zones (MRZs) based on guidelines adopted by the California State Mining and Geology Board, as mandated by the Surface Mining and Reclamation Act of 1975 (California Public Resources Code Section 2710 – 2797). Urban lands were classified within the North San Francisco Bay Production-Consumption Region according to the presence or absence of significant sand, gravel, or stone deposits that are suitable as sources of aggregate. Areas classified as MRZ-1 are areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little or no likelihood

exists for their presence. MRZ-2 areas are those where adequate information indicates that significant deposits are present. Areas classified as MRZ-3 contain mineral deposits, but their significance cannot be evaluated from available data. Areas are classified as MRZ-4 where available information is inadequate for assignment to any other MRZ category.

The project site is classified as MRZ-1 and MRZ-4. The soils are either imported engineered fill (the ITP site) or Reyes Clay which is found on tidal flats. The closest State Designated Mineral Resource Preservation Site is in the Black Point area (Marin Countywide Plan, Map 2-8) where sand and gravel was mined, but not since the 1950's. No impact is anticipated from project construction or operation.

Mitigation Measures

None required or recommended.

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
2.11 NOISE				
Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?	☐	☐	☐	☒
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion

a & d There are no sensitive receptors within the vicinity of the dechlorination project. Within the project area, noise sources include traffic on Highway 37, Highway 101, and Bel Marin Keys Blvd.

The closest residence is approximately 1,000 feet from the injection site. However construction of the piping could result in intermittent, elevated noise levels at the closest residences along Bel Marin Keys Blvd. According to the Novato General Plan (2002), "Sensitive receptors are land uses such as hospitals, convalescent homes, schools, and libraries." No sensitive receptors are mapped in proximity to the proposed project (SF-Map 6, Sensitive Noise Receptors).

Construction of the project is anticipated to commence in March 2005 and be completed by October 2005. Construction activities involve trenching and vehicle travel to and from the project site. Typical construction equipment (see Section 1) would generate noise in the range of 68 to 96 dBA at 50 feet without mitigation, depending on type of equipment in use at a given time. Projected noise levels (to year 2010), show Highway 37 and Highway 101 as the dominant noise source. (Novato General Plan, SF-Map 7). Part of the project would occur between the projected noise level contours of 60 and 65 dBA. Currently, the City of Novato does not have a comprehensive noise ordinance to address construction noise. Noise during construction would be significantly above projected levels and by extension, current levels since noise levels are projected to increase, but this noise increase would be temporary and relatively short in duration. The pace of construction would move noise sources on a daily basis as portions of the pipeline are completed. Construction of the pipeline would occur at an average rate of 150 feet per day.

Overall project construction would temporarily increase ambient noise levels. The increase in ambient noise levels would have a temporary impact on nearby residential areas. Without mitigation, the temporary and intermittent noise levels from construction activities would constitute a significant impact. Implementation of Measures N-1 through N-4 would reduce potential noise impacts associated with construction activities to less-than-significant levels. These measures include limitation of construction hours and the use of controls on construction equipment.

b Construction of the dechlorination facility would not expose people to ground borne vibration or noise because there are no facilities where people congregate. Construction would not require pile driving or other vibratory construction techniques; therefore, there is no impact.

c The operation of the proposed dechlorination facility would not generate a substantial permanent increase in ambient noise levels. There are no sensitive receptors in the vicinity of the proposed dechlorination facility. Thus, the operational impact on ambient noise levels is considered less-than-significant.

e – f As noted in Section 2.7 Hazards and Hazardous Materials, the proposed project is not located within an airport or a private airstrip; therefore, there are no impacts.

Mitigation Measures

Implementation of the following mitigation measures would reduce potentially significant construction noise impacts to less-than-significant levels.

Measure N-1: Adherence to local ordinances regulating hours of construction would minimize the potential for sleep disturbance and annoyance, because heavy construction would be limited to daytime hours. Construction activities should be limited to the hours of 7:30 a.m. and 7:00 p.m. on weekdays, and between 9:00 a.m. and 6:00 p.m. on weekends. Construction activities should be prohibited on holidays.

Measure N-2: All equipment would be equipped with mufflers equal or superior in noise attenuation to those provided by manufacturer of the equipment. In addition, idling equipment would be shut off.

Measure N-3: Construction vehicles should be properly maintained.

Measure N-4: Impact tools (e.g., jack hammers and pavement breakers) used for construction should be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves should be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used such as drilling rather than impact equipment whenever feasible.

2.12 POPULATION AND HOUSING

Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

a The dechlorination facilities replace an existing dechlorination facility located within the Hamilton Wetlands Restoration Project (HWRP) that will be decommissioned as part of the HWRP. The new dechlorination facility does not provide any additional wastewater treatment capacity nor does it have any impact on water supply or extension of infrastructure.

b – c The proposed project would not displace existing housing; therefore, this project would not necessitate the construction of replacement housing elsewhere.

Mitigation Measures

None required or recommended.

2.13 PUBLIC SERVICES

Would the project:

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

Discussion

a As noted in 2.12 Population and Housing**,** the dechlorination facility does not directly or indirectly affect growth in NSD's service area; thus, additional public services would not be required. There is no impact.

Mitigation Measures

None required or recommended.

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*

2.14 RECREATION

Would the project:

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion

a – b As noted in 2.12 Population and Housing, the dechlorination facility would not affect growth in NSD's service area; thus, the project would not lead to an increase in the use of existing parks or other recreational facilities. The project description does not include construction or expansion of recreational facilities or affect existing recreational facilities or trails. There is no impact.

Mitigation Measures

None required or recommended.

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*

2.15 TRANSPORTATION / TRAFFIC

Would the project:

a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☐	☒	☐	☐

b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☒	☐	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☒	☐	☐
f) Result in inadequate parking capacity?	☐	☐	☒	☐
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒

Discussion

a – b Trucks and construction workers would use Bel Marin Keys Boulevard between Highway 101 and the Ignacio treatment plant to access the storage and injection site. Average daily truck trips, over the duration of the project construction, is expected to be about 10 truck round trips. The construction would not encroach into any public right of ways. Access to the piping and injection site would be through the ITP, not along Bel Marin Keys Boulevard.

Construction-generated traffic would be temporary (approximately eight months) and therefore would not result in any long-term degradation in operating conditions or level of service on Bel Marin Keys Boulevard. The primary off-site impacts from the movement of construction trucks include short-term and intermittent lessening of roadway capacities due to slower movements of the trucks and larger turning radii of the trucks compared to passenger vehicles. The temporary increase in traffic is considered less-than-significant in relation to the existing traffic load and capacity of the street system, since truck and worker vehicle trips would be dispersed throughout the day. The implementation of Measure T-1, Traffic Control Measures, would further reduce potential traffic impacts to local roadways.

c The proposed project would not affect air traffic patterns, therefore no impact would occur.

d The project does not propose any design features that would increase hazards (substantially or otherwise) or incompatible uses.

e Construction activities at the proposed dechlorination facility would not obstruct emergency access.

f There is sufficient room to store equipment and trucks, and to provide parking for construction workers on NSD property at the ITP.

g Construction of the dechlorination facility would not conflict with any adopted policies, plans, or programs for alternative transportation.

Mitigation Measure

Implementation of the following measures would reduce potential impacts to less-than-significant levels.

Measure T-1: NSD should:

- Arrange haul routes to minimize truck traffic on local roadways
.
- Provide access for emergency vehicles at all times.
- Estimate the number of workers that will be present on the site during various phases of construction and make provisions for sufficient off-street and equipment parking.
- Conduct a pre-construction photographic/videographic survey to document road conditions on all construction routes to the project site. All construction traffic would be required to be within the legal posted road limits. If roads are damaged by excessive construction loads, then they would be repaired to a structural condition equal to that which existed before the construction activity.

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
2.16 UTILITIES AND SERVICE SYSTEMS				
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and				

resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion

a,b,e NSD is required by the RWQCB to operate a dechlorination facility to remove chlorine residual before treated effluent is discharged to San Pablo Bay. The project is limited to construction and operation of a dechlorination facility to replace the existing dechlorination facility which will be decommissioned as part of the Hamilton Wetlands Restoration Project. The project will not change the permitted capacity of the existing wastewater treatment facilities in accordance with its NPDES Permit No. CA0037958.

c The proposed project would not increase the need for additional off-site storm water drainage facilities.

d The proposed project does not require water entitlements.

f Solid waste generation would be limited to construction activities, and would not affect available solid waste disposal capacity in the region. No long-term solid waste generation would be associated with the proposed project because the chemical containers are reused.

g The contractor would be required to comply with all pertinent regulations regarding the disposal of solid waste generated by construction activities.

Mitigation Measures

None required or recommended.

Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*

2.17 MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulative considerable? ("Cumulative considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Discussion

a Impacts related to the project are mainly associated with construction activities. These construction-related impacts would not result in long-term alteration of the environment, and could be mitigated to less than significant levels through use of mitigation measures identified throughout the analysis. The project's operation may also be temporary, and last about four years, at which time the facilities may be decommissioned.

b Other projects in the immediate site vicinity include the North Marin Water District's Recycled Water Treatment Facility and Pipeline and the Novato Sanitary District's Wastewater Facility Master Plan Project. Potential cumulative impacts of project construction and operation are considered less than significant.

c Other environmental impacts could adversely affect human beings and are identified in Sections 2.3, 2.7, 2.8, 2.11, and 2.15. However, the mitigation measures identified in this Initial Study would reduce these impacts to less-than-significant levels.

SECTION 3

REPORT PREPARATION

3.1 LEAD AGENCY

The Novato Sanitary District (NSD) is the lead agency under CEQA for the preparation of the Dechlorination Facility Relocation Project.

Staff Member	Role
Sandeep Karkal, P.E.	Deputy Manager-Engineer

3.2 PROJECT COORDINATOR

NSD retained Raines, Melton & Carella, Inc. to prepare this Initial Study/Mitigated Negative Declaration.

RAINES, MELTON & CARELLA, INC.

Staff Member	Role
Marilyn Bailey, P.E	Senior Project Manager
Karen Frye, AICP	Project Manager for CEQA Analysis
Tony Valdivia, P.E	Design Manager
Darlene Abbott	Graphics
Chu To	Graphics

MAY AND ASSOCIATES

Staff Member	Role
Shannon Lucas	Biologist
Jennifer Zarnoch	Biologist

3.3 REFERENCES

Association of Bay Area Governments 2004. http://www.abag.ca.gov/abag/overview/pub/erosion.html

Association of Bay Area Governments 2003. http://www.abag.ca.gov/cgi-bin/pickmapx.pl (earthquake) Northern Golden Gate San Andreas Earthquake.

Bay Area Air Quality Management District 1999. http://www.baaqmd.gov/pln/ceqa/index.asp Published in December 1999.

California Air Resources Board 2003. http://www.arb.ca.gov/aqs/aaqs2.pdf Updated January 10, 2003.

California Department of Fish and Game 2004. Natural Diversity Database. Search for plants and animal occurrences for the Novato 7.5-minute USGS quadrangle and surrounding quadrangles. November 2004.

California Department of Toxic Substances Control 2003. http://www.dtsc.ca.gov/database/Calsites/Cortese_List.cfm?county=21

California Geological Survey 1997. http://www.consrv.ca.gov/cgs/rghm/ap/Map_index/F4B.htm#2.

California Public Resources Code. http://www.leginfo.ca.gov/cgi-bin/calawquery?codesection=prc

Caltrans http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2002all/r034-43i.htm traffic counts for Highway 37

City of Novato 2002. *Novato General Plan*, http://www.ci.novato.ca.us/cd/gp_menu.cfm as amended through 2002. Adopted by Novato City Council on March 8, 1996, Latest Revision March 25, 2003.

County of Marin 2004. *Countywide Plan* http://www.co.marin.ca.us/depts/cd/main/fm/TOC.cfm

Environmental Science Associates 2003. Recycled Water Treatment Facility and Pipeline, Administrative Draft Initial Study and Mitigated Negative Declaration prepared for North Marin Water District, 2003

Stormwater Quality Task Force 1993. *Municipal Best Management Practice Handbook*, prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, and Resource Planning Associates, March 1993.

State Water Resources Control Board 2003. http://geotracker.swrcb.ca.gov/data/ UST and LUFT data

U.S. Fish and Wildlife Service 2004. Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Novato 7.5-minute USGS quadrangle and surrounding quadrangles. November 2004.

William Self Associates 2003. *Archaeological Assessment of Proposed North Marin Water District Recycled Water Facility and Pipeline in Novato, Marin County, California*. May, 22, 2003.

SECTION 4

DISTRIBUTION LIST

The following agencies, organizations and individuals were notified of the availability of the Draft Initial Study and Mitigated Negative Declaration. One copy of the document was sent to the Novato Public Library and is available for public review.

State Clearinghouse, OPR
1400 10th Street, Room 121
Sacramento, CA 95814

City of Novato
City Clerk
901 Sherman Ave.
Novato, CA 94945

Farhad Mansourian
Director
Marin County Flood Control Department
3501 Civic Center Drive, RM 304
San Rafael, CA 94903

Novato Public Library
1720 Novato Blvd.
Novato, CA

David Wallace, Planning Manager
City of Novato
Community Development Dept.
901 Sherman Ave.
Novato, CA 94945

Tom Gandesbery
State Coastal Conservancy
11th Floor, 1330 Broadway
Oakland, CA 94612

County of Marin
Community Development Agency
3501 Civic Center Dr.
San Rafael, CA 94901

California Department of Fish and Game
Central Coast Region 3
7392 Silverado Trail
Napa, CA 94558

San Francisco Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

County of Marin
County Clerk
3501 Civic Center Dr.
San Rafael, CA 94901

Elizabeth Padilla
Brahma Kumaris Center
820 Bel Marin Keys Blvd
Novato 94949

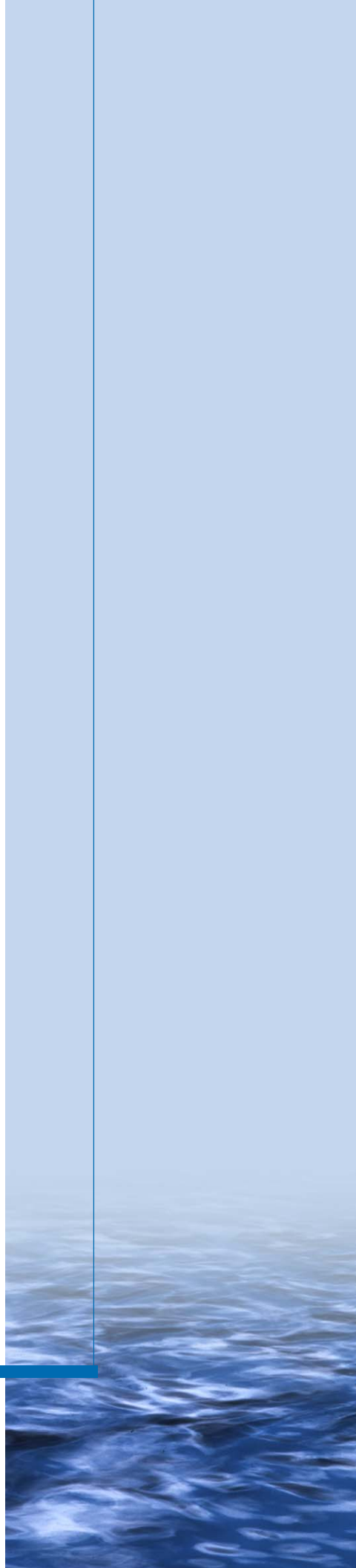
Bel Marin Keys Community Service District
4 Montego Key
Novato, CA 94949

San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

U.S. Army Corps of Engineers
San Francisco District
333 Market Street
San Francisco, CA 94105-2197

U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, CA 94105

U.S. Department of the Interior,
Fish and Wildlife Service
2800 Cottage Way-Rm W 2605
Sacramento, CA 95825



RMC
Raines, Melton & Carella, Inc.
Consulting Engineers/Project Managers

2001 North Main Street • Suite 400 • Walnut Creek, CA 94596 • Phone: 925-299-6733 • Fax: 925-299-6736

Dechlorination Facility Relocation Project

Draft Initial Study and Mitigated Negative Declaration

Appendix A

Representative Project Photos

Appendix A: Representative Project Photos

Photo 1 Ignacio Treatment Plant – Dechlorination Chemical Storage Site

Photo 2 Piping Alignment between Storage Site and Injection Point

Photo 3 Dechlorination Facility – Injection Site

Dechlorination Facility Relocation Project

Draft Initial Study and Mitigated Negative Declaration

Appendix B

Predesign Technical Memorandum

DRAFT Technical Memorandum

Raines, Melton & Carella, Inc.
Consulting Engineers/Project Managers

Innovative Solutions for Water and the Environment

Dechlorination Facilities Project

Task: **Predesign**

To: Beverly James, General Manager

Prepared by: Tony Valdivia, P.E.

Reviewed by: Marilyn Bailey, P.E.
Jenny Skrel, P.E.
Lea Fisher, P.E.

Date: October 14, 2004

1 Purpose of this Memo

The Novato Sanitary District (NSD) currently uses sodium bisulfite to dechlorinate the combined flow from their two treatment plants at a remote dechlorination facility located on the outfall. The dechlorination facility is located in the Hamilton wetlands which will be undergoing rehabilitation by the Corps of Engineers and the State Coastal Conservancy (SCC) to become tidal wetlands. The SCC has requested that NSD relocate the existing dechlorination facility out of the wetlands and is assisting in funding design and construction of replacement facilities.

This memorandum presents dechlorination facility design concepts and analyzes the ability of each alternative to meet overall project goals and objectives. The purpose of this analysis is to arrive at a recommended project. This memo presents:

- Project Background
- Project Goals
- Design Criteria
- Dechlorination Facility Alternatives
- Recommended Project

Note that this project does not address modifications to the existing disinfection process at NSD. It is assumed the existing flow measurement, chlorine residual sampling system, and hypochlorite metering system will be kept in place. Alternatives that modify the existing system include costs for replacing the existing components in-kind.

2 Project Background

The Novato Sanitary District (NSD) provides wastewater collection, treatment and disposal services for the community of Novato, California. Wastewater treatment is performed at two facilities: the Ignacio Treatment Plant (ITP) and the Novato Treatment Plant (NTP). The District is currently in the process of a Wastewater Treatment Plant Facility Plan that is analyzing three overall scenarios for significant upgrades of the existing plants to address regulatory requirements and replace aging infrastructure. The three scenarios are:

- Keep both plants in operation with significant upgrades at both,

- Combine the treatment at an upgraded Novato plant and decommission Ignacio as a treatment facility, or
- Combine the treatment at an upgraded Ignacio plant and decommission Novato as a treatment facility

As of this date (October 2004), the EIR for the Facility Plan is underway with a final decision on the recommended alternative to be made in early 2005.

Both the ITP and NTP currently achieve effluent disinfection through chlorination with sodium hypochlorite, a process which requires dechlorination to remove any residual chlorine from the treated effluent prior to discharge to San Pablo Bay. NSD only discharges to San Pablo Bay during wet weather. Discharge to San Pablo Bay is prohibited during June, July, and August. During this dry weather period, and typically for several months on either side of the discharge prohibition period, the outfall is not in service because the effluent is reclaimed for pasture irrigation. Dechlorination is not required for irrigation.

The existing dechlorination facility is located on the combined outfall of the two treatment plants, near the discharge point to San Pablo Bay. However, the land on which the existing facility sits will soon be redeveloped into tidal wetlands by the U.S. Army Corps of Engineers and the State Coastal Conservancy as a part of the Hamilton Wetlands Project. The dechlorination facilities must be relocated to facilitate completion of the wetlands rehabilitation project.

3 Goals for Developing Alternatives

Based on workshop discussions with NSD staff, the following goals have been identified for implementation of the Dechlorination Facilities Project:

- **Schedule** -New Dechlorination facilities shall be operational by October 2005
- **Facility Planning** - Design of the new dechlorination facilities must be consistent with the long-term planning currently underway in the District's Wastewater Facilities Plan.
- **Cost** - The alternatives should have reasonable capital and operating costs
- **Reliability** - The dechlorination facilities should provide treatment for the full range of treatment plant flows in compliance with all NPDES permit requirements
- **Implementable** - The existing treatment and dechlorination process must remain in operation during construction.

4 Design Criteria

This section contains the design criteria for the dechlorination facilities, as determined during workshop discussions with NSD staff.

4.1 Dechlorination Facility Location

Two basic alternatives have been evaluated as possible dechlorination facility locations:

1) **Alternative 1 - Separate facilities:** Construct separate facilities at ITP and NTP
2) **Alternative 2 - Combined facility:** Construct single facility on combined ITP/NTP outfall

These alternatives will be further evaluated in Section 5; however, a brief description is presented here as it pertains to design criteria for each alternative.

Under Alternative 1, separate dechlorination facilities would be constructed at the ITP and NTP. Both facilities are considered temporary for the following reasons:

- As a result of the ongoing Facility Plan, either treatment plant may be abandoned as a treatment facility by 2008 with treatment of all wastewater being performed at the other plant. At this date, the preferred alternative appears to be combining the treatment at Novato and decommissioning the Ignacio plant. However, that decision will not be finalized until early 2005, after decisions must be made on the dechlorination project alternatives.
- The plant that remains in service will be significantly upgraded to increase its level of treatment and to provide adequate treatment capacity for all wastewater flows. Because design of the new facility is not expected to begin until March 2005, the final selection of the upgrade alternative has not been made and the siting of the new facilities has not been finalized. Therefore, since it is not possible or advisable to design the dechlorination facility as a permanent installation. If a permanent dechlorination facility is to be included in the future site layout, it should be designed as a part of the final design.

Therefore the facilities presented in this memo are considered temporary and will be in service until the upgraded wastewater facilities are completed in 2008.

Under Alternative 2, a single dechlorination facility would be constructed at a location along the combined ITP/NTP outfall. The two outfalls meet at NSD Junction Box 3, approximately 2,800 feet downstream of the ITP. Because it would treat combined flows from both plants, the sodium bisulfite dosing capacity for this alternative would be larger than for the two systems described in Alternative 1. The chemical storage and chemical feed equipment for -this facility would be sized very similar to the NTP dechlorination facility described for Alternative 1.

4.2 Dechlorination Process and Equipment

Dechlorination will be performed through the introduction of a sodium bisulfite ($NaHSO_3$) solution into the chlorinated plant effluent. Chlorine is removed from plant effluent via the following chemical reaction:

$$NaHSO_3 + Cl_2 + H2O \longrightarrow NaHSO_4 + 2HCl$$

To achieve effective chlorine removal, the sodium bisulfite solution must be mixed thoroughly into the effluent stream. This may be accomplished by either installing mixing equipment or specialized diffusers or by introducing the sodium bisulfite into a region of turbulent effluent flow. The chemical reaction itself is nearly instantaneous, but sufficient mixing and dosing of sodium bisulfite into the flow to achieve complete removal of chlorine must be accomplished prior to the final sampling point for chlorine residual. In addition, the lag time between the upstream chlorine residual measurement and the point of sodium bisulfite addition must be short to achieve proper control of the dechlorination process.

Key components of the dechlorination process are discussed below.

4.2.1 Sodium Bisulfite Storage Tanks

NSD prefers to use cross-linked high density polyethylene (HDPE) storage tanks for sodium bisulfite storage. HDPE is resistant to corrosion by many commonly used wastewater treatment chemicals, including sodium bisulfite, and is an ideal material for chemical storage.

The most common problem associated with sodium bisulfite storage is the formation of crystals at low temperatures or as a result of evaporation. Sodium bisulfite solutions should be stored at

temperatures above 50 degrees Fahrenheit to avoid crystallization. To prevent crystallization, the tanks will be heat traced and insulated.

Tanks to be installed at each site shall be a minimum of 6,500 gallons in volume so that they can accept a full truck delivery and shall be sufficient to provide 72 hours of storage at the maximum hour plant flow. These volumes are calculated in Section 4.4, but are summarized below in Table 1 for reference.

Table 1 Required Sodium Bisulfite Storage Volumes

Facility Location	ITP	NTP	Combined
Maximum Hour Effluent Flow, mgd	10	33.4	43.4
Estimated Chlorine Residual, mg/L	5.1	5.7	5.6
Sodium Bisulfite Feed, gallons per day	220	830	1,060
Required Volume, gal (72 hours max hour)	664	2,501	3,180
Required Number of Tanks	1	1	1

Per direction from the Novato Fire Department, sodium bisulfite tanks must be double contained. HDPE tanks will be contained within a 30-foot by 15-foot area with a concrete wall 2 feet in height.

4.2.2 Chemical Piping

Polyvinyl chloride (PVC) piping is an ideal material for transporting sodium bisulfite due to its inert behavior when exposed to the chemical. NSD has expressed a preference for schedule 80 PVC piping.

The glue used to connect segments of sodium bisulfite PVC piping must also be chemically inert. NSD staff has provided the name of a manufacturer for a suitable glue already in use by the District. This glue, or its equal, will be specified for the project.

Heat tracing protects chemical piping from sodium bisulfite crystallization in the same way it protects the storage tanks. Heat tracing will be specified for all chemical delivery piping (piping that carries sodium bisulfite from the storage tanks to the injection point). Heat tracing is not required for the chemical fill pipe, which is the piping used to transfer sodium bisulfite from delivery trucks to the storage tanks. Fill piping is cleared of all chemicals following each tank fill using compressed air.

Per direction from the Novato Fire Department, all sodium bisulfite piping will be double contained.

Isolation valves for all plastic piping shall be Banjo brand, or equal, per NSD preference and as in-kind replacement for existing valves.

4.2.3 Chemical Metering

Sodium bisulfite must be injected into the chlorinated effluent in the proper proportions. Injecting too low a dosage will leave chlorine residual in the effluent, in violation of discharge requirements. This will result in mandatory fines of $3,000 per violation from the Regional Water Quality Control Board. Injecting too high a dosage will waste chemicals and be more costly. Accurate chemical metering is therefore critical for achieving successful dechlorination.

Chemical metering pumps, in combination with an automatic control system, are typically used to meter and adjust the amount of sodium bisulfite injected into the effluent stream. These pumps are small in size and can either be housed in a building or installed outside with minimal protection from the elements. The amount of bisulfite delivered is typically adjusted ("trimmed") automatically based on continuous sampling of the effluent prior to addition of sodium bisulfite. The required bisulfite dose is calculated by the control system using the upstream chlorine residual concentration and flow. During periods of discharge to San Pablo Bay, the chlorine residual must be zero. Therefore, a slight excess of sodium bisulfite is normally added to ensure that no residual chlorine remains in the flow being discharged. To check for compliance with the discharge requirements, NSD currently samples for both sodium bisulfite and chlorine residuals downstream of the existing dechlorination facility. The sampling point for a dechlorination facility constructed at either treatment plant will be directly downstream of the sodium bisulfite injection point. This sample point will be selected to allow sufficient time for the chemical to be completely mixed while also minimizing the lag time for control purposes.

There is always a lag time between the time the control system senses a change in wastewater flow, and the time that the control system is able to change the bisulfite dose to match the flow. Therefore, accurate chemical metering and control can be very difficult to accomplish if the chemical injection point is susceptible to surges in effluent flow. This is the situation at both of the treatment plants if the injection point is located either directly upstream or downstream of the dry or wet weather pumps. When these pumps kick-on, flow though the injection point would significantly increase. To provide adequate dechlorination under this kind of operation, the metering pumps would have to be equipped with control logic to allow the chemical dosage to be increased before the pumps start to compensate for the instantaneous increased flows. A far more desirable configuration would be to hydraulically separate the injection point from the pump wet well to eliminate the effects of pump surges on the operation of the dechlorination system. However, elimination of flow surges caused by pumping is viable only if space for installation of new hydraulic structures to separate the chlorine contact basin from the dechlorination system is available at the treatment plants. These improvements will be discussed further in Section 5.

NSD has expressed a preference for Wallace Tiernan metering pumps, or their equal. NSD has also expressed a need for the metering pump controls to be easily adjustable. RMC will work with NSD staff during final design to ensure that the controls meet NSD requirements.

4.2.4 Mixers or Diffusers

The final components of the dechlorination process are the mixers and diffusers. As previously discussed, adequate mixing is essential for ensuring that chlorine is completely removed from the plant effluent. Mechanical mixers are the simplest technology available for mechanical mixing. They are effective when a discrete mixing chamber or channel can be constructed to pass all effluent flow through a relatively small volume. Chemicals are added into the mixing chamber or channel prior to mixing. Mechanical mixers tend to be relatively high horsepower equipment.

Specialized chemical induction units are an alternative to simple mixers. The best known product in this category is the "Water Champ," manufactured by US Filter. These units can be used either in open channel or in-line pipe installations. Chemicals are fed directly into the unit and are mixed using a high velocity impeller into the effluent stream. Industry experience favors the Water Champ for its small size and efficient mixing. For this project, Water Champs will be used in lieu of mechanical mixers.

NSD currently injects sodium bisulfite using a 125-foot in-line diffuser at the existing dechlorination facility. The diffuser is essentially a perforated pipe that is located within the outfall pipe. A portion of the effluent from the combined outfall is pumped from the outfall pipe for mixing with sodium bisulfite. This mixture is then pumped through the diffuser pipe for mixing with the entire outfall flow. Since the diffusers are inaccessible, it is unknown whether this system experiences scaling problems which have been seen at other installations at the sodium bisulfite dilution point.

Constructing a long, in-line diffuser similar to the existing NSD diffuser at either treatment plant is not considered to be a viable option due to space limitations at the plants. The diffuser would have to be installed directly downstream of the effluent pumps, which presents problems with pump surge, as previously discussed. In addition to this problem, the ITP outfall leaves the ITP site only a few feet from the effluent pump discharge, meaning that the diffuser and downstream chlorine residual sampling point would have to be installed on property not owned by NSD. At both plants, a new section of discharge piping would have to be installed parallel to the existing outfall as a bypass to keep the plant operating during diffuser installation.

Diffusers are only considered a viable option for the combined outfall dechlorination facility alternative However, because this type of system would require more space than the Water Champ alternative. Therefore, use of a diffuser is not viable for any alternative.

The method of chemical mixing/induction used for any alternative will vary with site-specific space and hydraulic requirements. Recommended methods will be discussed in Section 5.

4.3 Wastewater Flow

The dechlorination facilities must have the ability to treat the full range of flows at each treatment plant. Table 2 summarizes the current flows at each plant.

Table 2 Summary of Current and Projected Flows

Flow rate (MGD)	ITP	NTP	Combined
Average Dry Weather	1.6	3.6	5.2
Average Wet Weather	2.2	5.9	8.1
Average Annual	1.9	4.4	6.3
Minimum Hour, Wet Weather	.8	1.5	2.3
Peak Week			
Average Peak Week	3.6	9.7	13.3
Maximum Peak Week	6.1	21.6	27.7
Peak Day			
Average Peak Day	5.5	17.7	23.2
Maximum Peak Day	7.0	28.0	35.0
Peak Hour			
Average Peak Hour	6.9	19.2	26.1
Maximum Peak Hour	10.0	33.4	43.4

(1) The Peak Week, Day, and Hour flows show averages and maximum values for the period of 1986 – 2002.

Estimated flows at buildout are expected range between an average wet weather day flow of 10.3 mgd and a maximum hour wet weather flow of 51.9 mgd. However, as discussed in Section 4.1, the dechlorination facilities designed for this project are to be interim facilities. As such, these facilities will be sized only for current flows and will not be sized to treat NSD buildout flows.

Table 3 presents the assumed plant flow ranges for which the dechlorination facilities must be sized.

Table 3 Summary of Dechlorination Flow Capacity

Facility Location	Minimum (mgd)	Maximum (mgd)
ITP	0.8	10.0
NTP	1.5	33.4
Combined Outfall	2.3	43.4

4.4 Chemical Dosage

The amount of chlorine residual remaining in wastewater is a function of wastewater flow, chlorine dosage and the concentration of organic material that reacts with the applied chlorine, i.e. chlorine demand.

Sodium bisulfite is dosed to chlorinated effluent as required to remove residual chlorine following disinfection. Requirements for discharge to San Pablo Bay, as included the District's NPDES permit, include a zero chlorine residual requirement. It is therefore critical that sodium bisulfite metering equipment be sized to supply a range of doses corresponding to the range of residual chlorine present in the plant effluent.

NSD has provided historical chlorine residual and flow data for the period from November through April for the years 2000 through 2004. This data is summarized in Table 4. Note that that flow data presented in Table 4 is not identical to the flow data shown in Table 2; Table 2 was created using historical data recorded between 1988 and 2002, a considerably longer period of record that that represented in Table 4. The period between November and April is of particular interested because NSD is most likely to discharge to San Pablo Bay during this time period. The combined effluent chlorine residual was estimated by applying the ratio of plant flows to the total daily chlorine residual. Also note that there is no correlation implied between the flow values and chlorine residual data presented in Table 4; since the data presented is simply a summary of data provide to RMC. The proposed values for flow and chlorine residual to be used in sizing the dechlorination system will be discussed later.

Table 4 Summary of Chlorine Residual for November through April 2000 - 2004

Facility Location	ITP	NTP	Combined
Daily Flow (mgd)			
Minimum	1.2	2.5	4.3
Maximum	5.5	21.4	29
Average	2.1	4.8	6.9
Daily Chlorine Residual (mg/L)			
Minimum	0.7	0	0.7
Maximum	19	8.5	11.4
Average	4.9	3.6	4

.

The chlorine residuals listed in Table 4 are taken at the effluent of the two plants. By the time the effluent reaches the existing dechlorination facility, the average chlorine residual has dropped to 2 mg/L in the combined effluent from both plants. It is important to note that this value is significantly lower than the chlorine residual that is present in the effluent when it leaves the plants. This is because the chlorine residual present in the effluent continues to react with organics in the outfall pipeline as it flows towards the dechlorination point near the San Pablo Bay discharge. Relocating the dechlorination process to the treatment plant sites eliminates this opportunity for chlorine residual reduction. As a result, the average chlorine residual that must be removed when flow is dechlorinated at the treatment site will be considerably higher than the existing concentration. In fact, the data in Table 4 indicates that the average chlorine residual for both plants combined will be 4 mg/L, double the average residual that is currently treated. This consequently doubles the amount of sodium bisulfite required to dechlorinate the effluent, creating an increase in operational costs to NSD.

NSD uses a solution of 28 percent sodium bisulfite to dechlorinate effluent. This is the equivalent of 2.8 pounds of sodium bisulfite per gallon of solution. The ratio of sodium bisulfite to chlorine residual mass required for treatment is 1.46:1. In other words, 1.46 pounds of sodium bisulfite are required remove each pound of chlorine residual from the plant effluent.

The wet weather data provided by NSD (summarized in Table 3, above) were used to estimate the correlation between flow and chlorine residual at each of the treatment plants. The correlation was assumed to be a linear relationship. Combined flow concentrations were estimated by applying the ratio of flows from each treatment plant to the total chlorine residual. The maximum and minimum flows for each site, as presented in Table 3, have been considered, as well as the average wet weather flow presented in Table 2. One additional flow design point, referred to as the “Worst design condition” has also been included; this condition represents the worst case scenario for chlorine residual: maximum hour flow with the maximum observed wet weather chlorine residual.

The estimated sodium bisulfite doses for plant design flows are shown in Table 5. As a point of reference, Appendix A contains a percentile analysis of required sodium bisulfite doses based on the actual wet weather flow and residual data provided by NSD.

Table 5 Estimated Sodium Bisulfite Dosages

Facility/Condition	Flow	Chlorine Residual		Bisulfite Dosage		Bisulfite Metering	
	mgd	mg/L	lbs/day	mg/L	lbs/day	gpm	gpd
ITP							
Minimum Hour Flow	0.8	5.3	35	7.7	51	0.01	18.2
Maximum Hour Flow	10	5.1	424	7.4	619	0.15	221.2
Average Day Flow	2.2	5.2	96	7.6	140	0.03	50.0
Worst Design Condition	10	19	1,585	27.7	2,315	0.57	826.7
NTP							
Minimum Hour Flow	1.5	3.4	42	5.0	62	0.02	22.1
Maximum Hour Flow	33.4	5.7	1,599	8.4	2,334	0.58	833.6
Average Day Flow	5.9	3.7	183	5.4	267	0.07	95.4
Worst Design Condition	33.4	8.5	2,369	12.4	3,458	0.86	1,235.2
Combined Facility							
Minimum Hour Flow	2.3	4.1	79	6.0	115	0.03	41.0
Maximum Hour Flow	43.4	5.6	2,028	8.2	2,961	0.73	1,057.5
Average Day Flow	8.1	4.1	277	6.0	405	0.10	144.5
Worst Design Condition	43.4	11	3,984	16.1	5,816	1.44	2,077.2

4.5 Effluent Sampling

The dechlorination facilities will be accompanied by three sampling points to ensure compliance with NPDES requirements. These sample points are summarized in Table 6.

Table 6 Sampling Points

Sample Point	Location	Samples
1[(1)]	Immediately upstream of Dechlorination Point	Coliform (bacteria)
2[(1)]	Downstream of Dechlorination Point	Chlorine Residual
3	Downstream of ITP/NTP Outfall Convergence	Metals Bioassay Ammonia Cyanide

[(1)] **Coliform and Chlorine Residual samples are needed at each plant**

Sample point 1 will be located upstream of the dechlorination point at each plant and will test for coliform bacteria, a measure of the effectiveness of chlorine disinfection. It is important to locate this sample point as close at possible to the dechlorination point in order to maximize chlorine contact time and minimize lag time for dechlorination control.

Sample point 2 will be located downstream of the sodium bisulfite injection point, allowing for sufficient mixing between the injection point and sampling location.

Sample number 3 is not part of the dechlorination system itself but is required to replace the sampling station that will be eliminated when the existing dechlorination facility is taken out of service. A sampling system is needed from the combined flow in the outfall back to the lab facilities at the Ignacio plant. There, the metals, ammonia and cyanide samples will be obtained as grab samples. The bioassay sample will be continuous flow.

5 Dechlorination Facility Alternatives

Two alternatives have been developed for the dechlorination facilities:

1) **Alternative 1 - Separate facilities**: Construct separate facilities at ITP and NTP
2) **Alternative 2 - Combined Facility:** Construct single facility on combined ITP/NTP outfall

5.1 Alternative 1- Separate Facilities

Alternative 1 would construct separate facilities at each treatment plant. As discussed in Section 4 of this TM, the facilities at both plants would be interim facilities that would be in use for approximately 4 years until construction of the Wastewater Facility upgrade project is completed. The details of each facility are discussed below.

5.1.1 Novato Treatment Plant

As discussed in Section 4, a single 6,500-gallon sodium bisulfite storage tank will be contained within a 30' by 15' concrete wall, two feet in height. Metering pumps, sample pumps and a chlorine residual analyzer will be housed within a prefabricated fiberglass enclosure adjacent to the site.

Because the NTP facility is temporary, the storage tanks and fiberglass building may be located anywhere on site where they are easily accessible and do not interfere with normal plant operations or with future layout options for the upgraded facility. The proposed location for the facility is south of the existing flow equalization basin as shown in Figure 1. This is not an ideal location for a permanent facility because it is located over the outfall. However, this location is not being considered in any of the proposed site plan layouts for the future upgraded facility and would therefore not interfere with construction of the new plant facilities. The existing sea wall could serve as the back wall of a secondary containment facility. To allow sodium bisulfite delivery trucks to access the storage tank for filling, a new roadway section would have to be completed east of the existing sludge lagoon to connect the existing paved roads. Figure 1 also illustrates preliminary chemical and sample pipe routing.

As the plant is currently configured, chlorinated effluent circulates through the chlorine contact basin and passes into the storage pond via four pipes running between the basins. The storage pond serves as the wet well for the dry and wet weather effluent pumps. Thus, the water surface elevation in both the storage pond and the chlorine contact basin is greatly influenced by effluent pump operation.

There are two alternatives for sodium bisulfite mixing at the NTP.

Option 1: The first alternative is to dechlorinate as effluent passes from the chlorine contact basin to the effluent storage pond. This may be accomplished by replacing the four existing pipes that connect the two basins with a single new channel between the basins. To achieve efficient dechlorination, flow should be forced to pass through as small an area as possible, creating a compact mixing chamber in the channel. However, the hydraulics of the flow between the two basins do not permit significant headloss to occur as flow passes from one basin to the next. The channel must convey flow with minimal headloss for the full range of flows at the NTP, approximately 1 mgd to 33 mgd. In addition, the flow in the channel should be protected from flow surges caused by operation of the large wet weather pumps. These pumps convey enormous flows which could draw effluent through the new channel too fast to allow for proper sodium bisulfite mixing.

One solution to these problems is to hydraulically separate the dechlorination channel from the effluent storage pond. This can be accomplished by constructing the structure shown in Figure 2. The structure contains a weir on its downstream face. This weir maintains the upstream water level in both the chlorine contact basin and the dechlorination channel. To facilitate efficient mixing, the initial portion of the dechlorination channel is relatively narrow. This forces flow through a small volume. However, the remainder of the channel must be widened to prevent excessive headloss at higher flow rates. In particular, severe headloss could occur as flow passes over the downstream weir if it were not sufficiently wide. Therefore, the channel widens significantly following dechlorination as flow proceeds towards the effluent storage pond.

A Water Champ would be installed in the channel to mix the sodium bisulfite into the narrow mixing channel.

As a result of the modifications described above, the effluent storage pond would be converted from a chlorinated basin to a dechlorinated basin. This impacts the No. 3 water pumps, which draw flow from the pond. These pumps serve as a source of disinfected, but still chlorinated, water for use in treatment plant activities that do not require potable water. These pumps would be relocated and No. 3 water piping would be replumbed to draw water from the chlorine contact basin. This modification also shortens the effective chlorine contact time since the contact time currently includes both the chlorine contact basin and the effluent storage pond.

<< Insert Figure 1 >>

<< Insert Figure 2 >>

This is an important issue because reducing the contact time or changing the chlorine contact tank configuration will affect the ability of the plant to maintain adequate disinfection reliability. Another chlorine application point is proposed at the effluent of the biotower. This would allow the piping between the biotower, the wet weather filters, and the chlorine contact basin to provide additional contact time to help make up for the decreased contact time due to conversion of the effluent storage pond to dechlorination.. The existing chlorine application point would become the secondary application point which would also allow any flows bypassed around the biotower to receive disinfection as they do now...

However, chlorinating the biotower effluent before the wet weather filters may require more than double the dose to maintain a residual. The chlorine might also cause problems in the wet weather filters in terms of headloss buildup because the solids characteristics would change with chlorine addition.

Samples for bacterial presence (coliform, Sample Point 1), which is a measure of the effectiveness of chlorine disinfection, would be taken just prior to the new dechlorination channel, requiring replumbing of the existing sample lines. The dechlorination compliance sampling point (chlorine residual, Sample Point 2) would downstream of the new weir. The existing coliform bacteria sampling lines are located at the effluent pump wet well, which is a suitable location for Sample Point 2. Therefore, the existing coliform sample lines will be rerouted to serve as chlorine residual sampling lines. Sampling lines would be routed to the new analyzers as shown in Figure 1.

Construction of the dechlorination structure will require a temporary bypass of the chlorine contact basin, carrying effluent from the chlorine contact chamber to the effluent storage pond during construction. This

Option 2: A second option for the NTP facility would be to locate the dechlorination point downstream of the effluent pumps, as shown in Figure 3. Chemical injection into the NTP outfall pipeline would be accomplished using an in-line Water Champ chemical induction unit. This unit would attach to the pipeline via a small flanged connection. The Water Champ impeller would protrude into the pipe flow and mix sodium bisulfite into the effluent flow. A new vault would be installed on the outfall to house the Water Champ. Because any modification of the plant outfall pipeline will require that the plant be taken out of service for construction, a new bypass pipeline would have to be installed parallel to the existing outfall. This would require modification of the effluent discharge piping and outfall. Discharge piping at the plant is welded steel, and considerable effort will be required to complete the modification.

Unlike the dechlorination channel, the outfall disinfection point does not offer any hydraulic protection from pump flow surges when effluent pumps activate or increase speed. To avoid insufficient dosing of sodium bisulfite in the initial moments following flow increases, advanced controls would have to be provided for the metering pumps to allow chemical feed rates to be increased prior to pump activation.

5.1.2 Ignacio Treatment Plant

Like the NTP, the ITP facility would consist of a single 6,500-gallon storage tank within a concrete containment wall. Metering pumps, sample pumps and chemical analyzers would be stored in a fiberglass building adjacent to the storage tank.

The dechlorination facility would be located adjacent to the existing Junction Box M, just east of the dechlorination basin, as shown in Figure 4. The filling station for the storage tanks would be located just south of Junction Box M. This location will allow sodium bisulfite delivery trucks to easily access the filling station and then exit the treatment plant site via existing roadways. In

<< Insert Figure 3 >>

<< Insert Figure 4 >>

addition, the metering pumps and analyzers would be very near to the point of sodium bisulfite injection, allowing for relatively short sample pipelines.

Option 1: In this option, sodium bisulfite injection would take place at the eastern end of the chlorine contact basin. The chlorine contact basin is a simple baffled channel. Chlorinated effluent enters the west end of the basin and is circulated through a series of two longitudinal wooden baffles until it reaches the intake for the dry and wet weather effluent pumps at the east end of the contact basin. The dry and wet weather effluent pumps discharge into separate force mains which combine at the eastern property line of the ITP and then proceed east towards the combined NTP/ITP outfall.

The dechlorination point may be located upstream of the effluent pump intake point by creating a dechlorination channel within the existing chlorine contact basin. This configuration is shown in Figure 5. Flow through the final segment of the channel would be routed through a new narrow channel that will serve as the dechlorination channel for the ITP, much as was described for the NTP. A Water Champ is situated in the dechlorination channel to deliver and mix the sodium bisulfite. Unlike the dechlorination channel proposed for NTP, the channel at ITP cannot include a discharge weir to regulate the water levels at the dechlorination point and hydraulically separate channel flow from the effluent pumps. Including a weir would create a very small wet well on the downstream side of the weir which the effluent pumps would draw down in a very short period of time. This would result in inefficient and potentially damaging pump cycling. As a result, a dechlorination channel at the ITP would be subject to pump surges due to operation of the effluent pumps. Advanced metering pump controls are recommended to allow the metering pumps to ramp up the sodium bisulfite feed prior to pump flow increases.

Another concern for dechlorination in the existing contact basin is the baffles in the chlorine contact channel. These baffles are simple wooden structures. As such, the baffles are likely to be fairly leaky, allowing a small amount of flow to pass through them. The baffles that separate chlorinated effluent from dechlorinated effluent must be retrofitted to prevent cross contamination. The wooden baffles will be coated and grouted or fitted with solid fiberglass or PVC sheets to minimize leakage. It may be necessary also to dose at a slightly higher sodium bisulfite dosage so that there is bisulfite residual to treat any chlorinated effluent that does leak through into the dechlorinated portion of the channel.

As with the NTP, it is recommended that a new primary chlorination point be constructed downstream of the biotower at the ITP to increase chlorine contact time. The existing injection point would become the secondary injection point. The same concerns regarding decreased chlorine contact time exist for this option as for NTP.

Sample point 1, bacterial presence, remains where it is currently located, just upstream from the new dechlorination channel.

Sample point 2, chlorine residual, would be located just downstream of the dechlorination chamber.

Option 2: A second alternative for the ITP dechlorination point would be to situate it downstream of the effluent pumps, as shown in Figure 6. As with the NTP, chemical injection would be performed using an in-line Water Champ chemical induction unit mounted on the ITP outfall pipeline. However, installing the Water Champ on the ITP outfall will require it to be located on private property, requiring an easement. In addition, the existing effluent flow from the ITP would have to be bypassed around the injection point during construction. Modification of the existing welded steel discharge pipelines and outfall would be not be easy, as it would require cutting into the pipelines to install the bypass piping.

<< Insert Figure 6 >>

<< Insert Figure 7>>

5.2 Alternative 2- Combined Facilities

Under Alternative 2, a combined dechlorination facility would be constructed to treat the effluent from both the ITP and the NTP, similar to the existing facility, but upstream on the outfall so it is not within the tidal wetlands. This facility is considered to be a temporary structure since permanent dechlorination facilities would be installed within the plant during the treatment plant upgrade project. However it would require easements for construction of the new facility and year-round access for operation and maintenance.

5.2.1 Dechlorination Facility

The sodium bisulfite tanks and metering pumps would be installed at the ITP, as shown for Alternative 1. However, the dechlorination point would be located downstream of the convergence of the ITP/NTP outfalls. The chemical feed lines would be routed 2,800 feet from the ITP to the dechlorination point.

The convergence of the ITP/NTP outfalls occurs at Junction Box 3, as shown in Figure 7. A residual chlorine sample would be taken about 20 ft downstream of Junction Box 3 to allow the flows from NTP and ITP to mix before sampling. A new flow meter to measure the combined flow is needed to control the bisulfite dosage. This chlorine sample would be withdrawn just before the sodium bisulfite injection point. Because the outfall is pressurized, open mixing chambers are not viable, so injection of sodium bisulfite would be accomplished via an in-pipe diffuser or mixer. An inline water champ or diffuser are two options. However, the Water Champ requires considerably less space to install and does not require recirculation of outfall flow to dilute the sodium bisulfite prior to injection. The Water Champ is therefore the preferred option.

The dechlorination compliance point (Sample Point 2) would be located approximately 20 feet downstream of the sodium bisulfite injection point. Because the sample lines used to detect chlorine residuals must be relatively short in order to provide accurate control of sodium bisulfite dosing, the chlorine residual analyzer would have to be located directly adjacent to Sample Point 2. This would require a fiberglass building structure to house the analyzer.

Sample Point 1, bacterial sampling, would take place at the existing sample points at NTP and ITP.

In addition to the analyzers and mixing facilities, all-weather access to the site would also be required. A roadway would have to be constructed. The length of this roadway is estimated to be 2,800 feet. This alternative also requires a completely new power supply and easements for construction and site access.

One major advantage of this alternative is that it would not require installation of a bypass pipeline around the outfall, because this section of the outfall is shut down during the summer when the ITP effluent is diverted north to the effluent storage ponds for reclamation.

5.3 Combined Outfall Sampling

Irrespective of the dechlorination alternatives, the final sample for compliance with metals, ammonia, cyanide and bioassay requirements (Sample Point 3) will be taken downstream of the convergence of the ITP/NTP outfalls. Bioassay testing requires continuous flow to a bioassay facility. The NSD bioassay facility is located at the ITP, which is located approximately 2,500 feet from the sample point.

Running sample pipelines for long distances presents a key design concern. Sample lines conveying dechlorinated water tend to foul over time. This fouling effects water sample quality

and is therefore undesirable. Short sample lines are easier to maintain and are therefore preferred.

The District's existing Bel Marin Keys No. 5 (BMK5) pump station is located somewhat closer to the location of Sample Point 3 and was considered as an alternative location for bioassay facilities. However, BMK5 is 850 feet from the sample point. While this net savings in sample line length is considerable, it is not sufficient to significantly reduce the potential for fouling in the lines. The lines are still long enough to create a problem. Given this fact, it is not recommended to construct new bioassay facilities at BMK5. Rather, NSD should continue to use its existing bioassay facilities at the ITP.

The recommended alternative to decrease fouling of long sample lines is to disinfect sample lines as required. To facilitate this, three parallel, 1-inch sample lines are recommended. The lines would be valved so that one line is always delivering continuous samples to the ITP. At the same time, the other two lines are circulating chlorinated water to keep the sample lines disinfected. Chlorinated water is routed down one of the two spare lines and then back up the other. The used chlorinated water is routed to a drain at the ITP.

The duty of "active" sample line is rotated among the three parallel sample lines. In some installations, this may be accomplished manually. However, Sample Point 3 is not an easily assessable site, particularly during wet weather. The valving used to rotate the active sample line must therefore be automated to be operated from a remote location. NSD staff must check that the sample line has been purged of chlorinated water prior to directing the flow to the bioassay test. The controls to accomplish this task must be incorporated in NSD's existing SCADA system.

Metals, ammonia and cyanide sampling may be performed via grab samples from the same sample line that carries flow to the bioassay facility. A new sample pump and circulating pump will be installed at ITP to pump sample and chlorinated water through the lines, respectively.

6 Comparison of Alternatives

Each of the two alternatives presented is capable of meeting the basic project goals identified in Section 3:

- **Schedule** -New Dechlorination facilities in operation by October 2005
- **Facility Planning** - Design of the new dechlorination facilities must be consistent with the long-term planning currently underway in the District's Wastewater Facilities Plan.
- **Cost** - The alternatives should have reasonable capital and operating costs
- **Reliability** - The dechlorination facilities should provide treatment for the full range of treatment plant flows in compliance with all NPDES permit requirements. Disinfection reliability must be maintained.
- **Implementable** - The existing treatment and dechlorination process must remain in operation during construction.

6.1 Cost Estimates

Capital cost estimates have been prepared for both alternatives. The detailed cost estimates are attached in Appendix B. The summary of the capital cost estimates is shown below in Table 7.

Table 7 Summary of Estimated Capital Costs

Alternative	Dechlorination Point	Estimated Capital Cost
Alternative 1		
Option 1	Dechlorination channel upstream of effluent pumps (both plants)	$1,395,000
Option 2	Dechlorination in pump effluent piping (both plants)	$1,504,000
Alternative 2	Combined NTP/ITP Outfall	$897,000

6.2 Construction and Operating Issues

The advantages and disadvantages of each alternative are summarized in Table 8 at the end of this TM.

6.3 Recommended Alternative

Based on cost and operational advantages, the recommended alternative is Alternative 2, construction of a new combined dechlorination facility downstream of the convergence of the two effluent flows at Junction Box 3. If easements can not be obtained for construction of this alternative, the second best alternative is Alternative 1, Option 2, i.e. construction of dechlorination facilities in the effluent force main at each plant.

Table 8 Comparison of Alternatives

Alternative	Advantages	Disadvantages
Alternative 1 – Separate Facilities Option 1 Dechlorination Channel	• All facilities are constructed on NSD property; no environmental documentation required for construction • Power is available to drive all new equipment • Access to facilities is possible using predominantly existing roadways	• Chlorine residuals are higher when effluent is treated at plant, requiring higher doses of bisulfite • Conversion of effluent pond at NTP and a portion of the chlorine contact basin at ITP to a dechlorinated basin reduces chlorine contact time at both NTP and ITP. Disinfection reliability will be reduced. A new chlorine contact point downstream of biotower will help to mitigate this, but the overall disinfection reliability may still be reduced. • Relocation of No. 3 water system to chlorine contact basin required at NTP • Construction activity at treatment plants will require partial bypassing of chlorine contact structures. Plants cannot be taken out of service. • This alternative relies on existing weirs to measure flow for calculating chemical dosage. Weirs currently are submerged and inaccurate at peak flows • **Off-site facilities are still required for the combined sampling system**
Alternative 1 – Separate Facilities Option 2 Dechlorinate in Pump Effluent Piping	• Power is available to drive all new equipment • Compared to Option 1, the existing chlorine contact basin configuration is unchanged. • Access at NTP is possible using predominantly existing roadways	• Chlorine residuals are higher when effluent is treated at plant, requiring higher doses of bisulfite • At ITP, this work will take place outside the fence line requiring construction easements. • Bypass of the existing plant effluent force main is required at both plants. • This alternative relies on existing weirs to measure flow for calculating chemical dosage. Weirs currently are submerged and inaccurate at peak flows • Off-site facilities are still required for the combined sampling system.

Alternative	Advantages	Disadvantages
Alternative 2 – Combined Facility	• Chlorine residuals are lower when flow passes though outfall prior to dechlorination, reducing sodium bisulfite costs • No disruption or alteration of treatment process at plants • Work can be done during dry weather when outfall is not used (no bypassing required) • Only one facility to build and maintain • More reliable disinfection • Construction can be combined with the new effluent sampling station so construction is concentrated at one location	• Facility site is not owned by NSD; temporary easements and environmental documentation required for construction • New power source and control wiring needed for equipment and signals. • Storage and metering facilities are constructed at ITP, requiring longer feed lines • Maintenance requires offsite visits

Appendices

Chlorine Residual Data
Detailed Cost Estimates

Dechlorination Facility Relocation Project

Draft Initial Study and Mitigated Negative Declaration

Appendix C

Special Status Species

Table 1. Special Status Species

Scientific Name	Common Name	Legal Status			Habitat requirement and/or association	Micro habitat	Species Distribution / Range	Identification Period	Comments Regarding NSD Dechlorination Facility Site
		Federal	State	CNPS					
Plants									
Allium peninsulare var. franciscanum	Franciscan onion	FSLC		1B	Cismontane woodland, valley and foothill grassland.	Clay soils; often on serpentine. Dry hillsides. 100-300m.	Central Coast, San Francisco Bay Area.	May-June	No suitable habitat.
Alopecurus aequalis var. sonomensis	Sonoma alopecurus	FE		1B	Freshwater marshes and swamps, riparian scrub.	Wet areas, marshes, and riparian banks with other wetland species. 5-360m. Known from a few occurrences in Sonoma and Marin Counties.	Central Coast	May-June	No suitable habitat.
Amsinckia lunaris	Bent-flowered fiddleneck	FSLC		1B	Cismontane woodland, valley and foothill grassland.	Disturbed areas, areas with low vegetation cover in grasslands and open-canopied woodlands. 50-500m.	Inner North Coast Ranges, west-central Great Central Valley, San Francisco Bay Area .Heterostylous or anthers in upper and lower group. Fl size variable.	March-June	Limited suitable habitat present, unlikely to occur due to heavily disturbed nature of site and lack of occurrences in vicinity.
Arabis blepharophylla	Coast rock-cress	FSLC		4	Broadleafed upland forest, coastal prairie, coastal scrub.	Prefers rocky coastal bluffs and ridges with thin soils. Often on serpentine soils. 15-500m.	Outer North Coast Ranges, San Francisco Bay Area .	February-May	No suitable habitat.
Arctostaphylos hookeri ssp. montana	Tamalpais manzanita	FSC		1B	Chaparral, valley and foothill grassland.	Known from fewer than 20 occurrences in the Mt. Tamalpais area, Marin County. Serpentine slopes in chaparral and grassland. 160-760m.	n Central Coast, nw San Francisco Bay Area (Mount Tamalpais, Marin Co.)	February-April	No suitable habitat. No Manzanita species observed.
Astragalus pycnostachyus var. pycnostachyus	Marsh milkvetch	FSLC		1B	Coastal dunes, coastal salt marshes.	Mesic sites in dunes or along streams or coastal salt marshes. 0-30m.	North Coast, n Central Coast .	April-October	No suitable habitat.
Astragalus tener var. tener	Alkali milk-vetch	FSC		1B	Alkali playa, valley and foothill grassland, vernal pools.	Low ground, alkali flats, and flooded lands; in annual grassland, playas, and vernal pools. 1-170m.	s. Sacramento Valley, n. San Joaquin Valley, east SF Bay Area	March-June	No suitable habitat.

This table list species with potential to occur in habitats that are or may be similar to those observed on the IWTP dechlorination facility project site.

List compiled from database occurrence records from the California Department of Fish and Game's Natural Diversity Database (CDFG 2004) and the U.S. Fish and Wildlife Service's list of species (USFWS 2004) for the Novato 7.5-minute USGS quadrangle and the eight surrounding quadrangles.

Table 1. Special Status Species

Scientific Name	Common Name	Legal Status			Habitat requirement and/or association	Micro habitat	Species Distribution / Range	Identification Period	Comments Regarding NSD Dechlorination Facility Site
		Federal	State	CNPS					
Atriplex californica	California saltbush	FSLC			Coastal strand, coastal salt marsh, coastal sage scrub, sea bluffs. North of Monterey this species generally occurs on the upper edges of sandy salt marshes and on coastal sandstone bluffs.		s North Coast, Central Coast, South Coast, Channel Islands	July-August	No suitable habitat.
Blennosperma bakeri	Sonoma sunshine	FE	E	1B	Valley and foothill grassland	Vernal pools, wet grasslands	North Coast Ranges, ne San Francisco Bay Area (s Sonoma Co.)	March-May	No suitable habitat.
Calochortus tiburonensis	Tiburon mariposa lily	FT	T	1B	Valley and foothill grassland.	Narrowly endemic to Ring Mountain, Marin County. On open, rocky, slopes in serpentine grassland. 50-150m.	nw San Francisco Bay Area (Ring Mtn, Marin Co.)	March-June	No suitable habitat.
Castilleja affinis ssp. neglecta	Tiburon paintbrush	FE		1B	Valley and foothill grassland.	Known only from Marin, Napa, and Santa Clara Counties. Rocky serpentine sites. 75-400m.	s Inner North Coast Ranges (Napa Co.), San Francisco Bay Area (Marin, Santa Clara cos.)	April-June	No suitable habitat.
Castilleja ambigua ssp. ambigua	Salt marsh owl's-clover	FSLC			Coastal bluffs, grassland.	<100m.	North Coast, s North Coast Ranges, n&c Central Coast .		Limited suitable habitat present, but unlikely to occur due to level of disturbance.
Chorizanthe cuspidata var. cuspidata	San Francisco Bay spineflower	FSC		1B	Coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub.	Coastal strand & coastal scrub communities. Sandy soil on terraces and slopes. 5-550m.	Alameda (extirpated), Marin, Santa Clara(questionable), San francisco, San Mateo, Sonoma (questionalbe)	April-August	No suitable habitat.
Chorizanthe valida	Sonoma spineflower	FE	SE	1B	Coastal prairie.	Known only from Marin and Sonoma counties; extinct in Sonoma county.sandy soil. 10-50m.	n Central Coast (Point Reyes Peninsula, Marin Co.) .One extant population known; threatened by cattle. Closely related to *C. pungens*	June-October	No suitable habitat.
Clarkia davyi	Davey's clarkia	FSLC			Coastal grassland, bluffs.		North Coast, n Central Coast, n Channel Islands (Santa Rosa Island) .		No suitable habitat.

Table 1. Special Status Species

Scientific Name	Common Name	Legal Status			Habitat requirement and/or association	Micro habitat	Species Distribution / Range	Identification Period	Comments Regarding NSD Dechlorination Facility Site
		Federal	State	CNPS					
Collinsia corymbosa	Round-headed Chinese houses	FSC		1B	Coastal dunes, coastal prairie.	Dunes and coastal priairie. 10-30m.	North Coast (scattered) formerly n CCo, where transitional to *C. bartsiifolia* .	April-June	No suitable habitat.
Cordylanthus maritimus ssp. palustris	North Coast bird's-beak	FSC		1B	Coastal salt marsh.	Usually in coastal salt marsh with *Salicornia, Distichlis, Jaumea* , *Spartina* , etc. 0-15m.	n North Coast (Humboldt Co.), n Central Coast (Marin, Sonoma cos.)	June-October	Limited potentially suitable habitat in/along adjacent creek, but would not be affected by project activities.
Cordylanthus mollis ssp. mollis	Soft bird's-beak	FE	SR	1B	Coastal salt marsh.	In coastal salt marsh with *Distichlis, Salicornia, Frankenia,* etc. 0-3m.	n Central Coast .	July-November	Limited potentially suitable habitat in/along adjacent creek, but would not be affected by project activities.
Delphinium bakeri	Baker's larkspur	FE, PCH	SR	1B	Coastal scrub, grasslands.	Only site occurs on nw facing slope, on decomposed shale. Historically known from grassy areas along fencelines too. 90-205m.	n San Francisco Bay Area, n Central Coast, (s Sonoma Co.)	March-May	No suitable habitat.
Delphinium luteum	Yellow larkspur	FE, PCH	SR	1B	Chaparral, coastal prairie, coastal scrub.	Endemic to a couple of occurrences hanging on in Sonoma County. North-facing rocky slopes. 0-100m.	n Central Coast (Marin, Sonoma cos.) . Hybridizes with *D. decorum* , *D. nudicaule* .	March-May	No suitable habitat.
Eriogonum luteolum var. caninum	Tiburon buckwheat	FSLC		3	Chaparral, valley and foothill grassland, coastal prairie.	Known from the greater Bay Area. Serpentine soils. 10-500m.	c Inner North Coast Ranges (Colusa Co.), n Central Coast, n San Francisco Bay Area (Marin, formerly Alameda cos.)	June-September	No suitable habitat.
Fritillaria lanceolata var. tristulis	Marin checker lily	FSC		1B	Coastal bluff scrub, coastal scrub, coastal prairie.	Endemic to Marin County. Occurrences reported from canyons and riparian areas as well as rock outcrops; often on serpentine. 30-300m.	Endemic to Marin County	February-April	No suitable habitat.

Table 1. Special Status Species

Scientific Name	Common Name	Legal Status			Habitat requirement and/or association	Micro habitat	Species Distribution / Range	Identification Period	Comments Regarding NSD Dechlorination Facility Site
		Federal	State	CNPS					
Fritillaria liliacea	Fragrant fritillary	FSC		1B	Coastal scrub, valley and foothill grassland, coastal prairie.	Often on serpentine; various soils reported though usually clay, in grassland. 3-410m.	Sacramento Valley (Solano Co.), Central Western California.	February-April	Limited potential habitat present, but unlikely to occur due to level of disturbance.
Grindelia hirsutula	San Francisco gumplant	FSC		1B	Coastal scrub, coastal bluff scrub, valley and foothill grassland.	Ocean bluffs and coastal hillsides, sandy or serpentine slopes, sea bluffs. 15-400m.	North Coast Ranges, n&c Sierra Nevada Foothills, Sacramento Valley, Central Western California, Western Transverse Ranges, Peninsular Ranges, Sonoran Desert	August-September	No suitable habitat.
Helianthella castanea	Diablo helianthella	FSC			Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley & foothill grassland.	Usually in chaparral/oak woodland interface in rocky, azonal soils. Often in partial shade. 25-1150m.	n San Francisco Bay Area	April-June	No suitable habitat.
Hesperolinon congestum	Marin dwarf-flax "Marin Western Flax"	FT	T	1B	Chaparral, valley and foothill grassland.	Known only from Marin, S.F., and San Mateo counties. In serpentine barrens and in serpentine grassland and chaparral. 30-365m.	nw San Francisco Bay Area .	April-July	No suitable habitat.
Holocarpha macradenia	Santa Cruz tarplant	FT	E	1B	Coastal prairie, valley and foothill grassland.	Light, sandy soil or sandy clay; often with nonnatives. 10-260m.	n Central Coast (n&c Monterey Bay), sw San Francisco Bay Area. Threatened by development, agriculture.	June-October	No suitable habitat.
Lasthenia conjugens	Contra Costa goldfields	FE		1B	Cistamontane woodland, playas (alkaline), valley and foothill grassland, vernal pools/mesic	elevation 0-470 meters	± deltaic Sacramento Valley (Napa, Solano cos.) (formerly North Coast, s Sacramento Valley, San Francisco Bay Area, South Coast)	March-June	No suitable habitat.
Lessingia micradenia var. micradenia	Tamalpais lessingia	FSC		1B	Chaparral, valley and foothill grassland.	Endemic to Marin county. Usually on serpentine, in serpentine grassland or serpentine chaparral. Often on roadsides. 100-305m.	n San Francisco Bay Area (Mount Tamalpais, Marin Co.)	June-October	No suitable habitat.

Table 1. Special Status Species

Scientific Name	Common Name	Legal Status			Habitat requirement and/or association	Micro habitat	Species Distribution / Range	Identification Period	Comments Regarding NSD Dechlorination Facility Site
		Federal	State	CNPS					
Linanthus grandiflorus	Large-flowered linanthus	FSC		4	Open, grassy flats, generally in sandy soil.		North Coast, Central Coast, San Francisco Bay Area	April-August	No suitable habitat.
Microseris paludosa	Marsh microseris (silverpuff)	FSLC		1B	Closed-cone coniferous forest,cismontane woodland, coastal scrub, valley and foothill grassland.	5-300m.	Central Coast, San Francisco Bay Area. Most occurrences are coastal.	April-June	Limited potential habitat present, but unlikely to occur due to level of disturbance and lack of occurrences in vicinity.
Monardella undulata	Curley-leaved monardella	FSC		4	Chaparral, coastal dunes, coastal scrub, lower montane coniferous forest.	Ponderosa pine sandhills; sandy soils. 0-300m.	Central Coast, San Francisco Bay Area	May-September	No suitable habitat.
Navarretia leucocephala ssp. bakeri	Baker's navarretia	FSC		1B	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest.	Vernal pools and swales; adobe or alkaline soils. 5-950m.	Inner North Coast Ranges, w Sacramento Valley .Intermediate between subspp. *leucocephala* and *plieantha*	May-June	No suitable habitat.
Pentachaeta bellidiflora	White-rayed pentachaeta	FE	E	1B	Valley and foothill grassland.	Open dry rocky slopes and grassy areas, often on soils derived from serpentine bedrock. 35-620m	San Francisco Bay Area	March-May	No suitable habitat.
Perideridia gairdneri ssp. gairdneri	Gairdner's yampah	FSC			Broadleafed upland forest, chaparral, coastal prairie, valley and foothill grassland, vernal pools.	Adobe flats or grasslands, wet meadows and vernal pools, under pinus radiata along the coast; mesic sites. 0-350m.	s North Coast (Sonoma Co.), Central Coast (scarce s of Monterey Co.), South Coast	June-October	No suitable habitat.
Plagiobothrys glaber	Hairless popcorn flower	FSC		1A	Meadows and seeps, marshes and swamps.	Coastal salt marshes and alkaline meadows. 5-180m.	Central Coast, s San Francisco Bay Area (especially near Hollister) .Perhaps a var. of *P. stipitatus* .	March-May	No suitable habitat.
Pleuropogon hooverianus	North Coast semaphore grass	FSC	T	1B	Broadleafed upland forest, meadows and seeps, north coast coniferous forest.	Wet grassy, usually shady areas, sometimes freshwater marsh; associated with forest environments; 10-1150m.	s North Coast, n Central Coast .	May-August	No suitable habitat.

Table 1. Special Status Species

Scientific Name	Common Name	Legal Status			Habitat requirement and/or association	Micro habitat	Species Distribution / Range	Identification Period	Comments Regarding NSD Dechlorination Facility Site
		Federal	State	CNPS					
Polygonum marinense	Marin knotweed	FSLC		3	Marshes and swamps.	Coastal salt marshes and brackish marshes. 0-10m.	San Francisco Bay Area (especially Marin Co.) .Related to *P. aviculare* , taxonomic status uncertain: possibly = *P. robertii* Loisel.; if so, alien, native to w Medit. Endangered by salt marsh development. Merits immediate study.	April-October	No suitable habitat.
Sidalcea calycosa ssp. Rhizomata	Point Reyes checkerbloom	FSLC		1B	Marshes and swamps.	Freshwater marshes near the coast. 5-75(245)m.	c&s North Coast (Mendocino, Sonoma cos.), n Central Coast (Marin Co.)	April-September	No suitable habitat.
Spartina foliosa	Pacific cordgrass	FSLC			Coastal salt marsh	Baja to northern california	North Coast, Central Coast, South Coast		No suitable habitat.
Stebbinsoseris decipiens	Santa Cruz microseris (silverpuffs)	FSC		1B	Broadleafed upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub.	Open areas in loose or disturbed soil, usually derived from sandstone, shale or serpentine, on seaward slopes. 10-500m.	n&c Central Coast	April-May	No suitable habitat.
Streptanthus batrachopus	Tamalpais jewelflower	FSC		1B	Serpentine barrens, chaparral or woodland	< 650 m	s Outer North Coast Ranges, nw San Francisco Bay Area (Mount Tamalpais) .NCoRO plants, some with hairy sepals, may be undescribed.	April-June	No suitable habitat.
Streptanthus glandulosus ssp. Pulchellus	Mount Tamalpais jewelflower	FSC		1B	Chaparral, valley and foothill grassland.	Endemic to Marin county. Serpentine slopes. 150-800m.	nw San Francisco Bay Area (Marin Co.)	May-July	No suitable habitat.
Streptanthus niger	Tiburon jewelflower	FE	E	1B	Valley and foothill grassland.	Endemic to Marin County. Serpentine outcrops in grasslands, shallow, rocky serpentine slopes. 30-150m.	n Central Coast (Tiburon Peninsula, Marin Co.)	May-June	No suitable habitat.
Trifolim depauperatum var. hydrophilum	saline clover	FSC		1B	Possibly extinct. Salt marshes, valley and foothill grassland (mesic, alkaline), vernal pools.	< 300 m	Sacramento Valley, Central Western California	April-June	Potential habitat adjacent to site in creek, but unlikely to be affected. Also, unlikely to occur.

Table 1. Special Status Species

Scientific Name	Common Name	Legal Status			Habitat requirement and/or association	Micro habitat	Species Distribution / Range	Identification Period	Comments Regarding NSD Dechlorination Facility Site
		Federal	State	CNPS					
Trifolium amoenum	Showy Indian clover	FE		1B	Valley and foothill grassland, coastal bluff scrub.	Moist heavy soils sometimes on serpentine soil, open sunny sites, swales. 5-560m.	s North Coast Ranges, n Central Coast, San Francisco Bay Area .Probably belongs to *T. albopurpureum* complex.	April-June	Limited suitable habitat present, but unlikely to occur due to level of disturbance and lack of ideal habitat conditions.
Invertebrates									
Adela oplerella	Opler's longhorn moth	FSC			Coastal grassland and serpentine grasslands.	All but Santa Cruz site is on serpentine grassland. Larvae feed on *Platystemon californicus* .	Marin County & the Oakland area on the Inner coast ranges south to Santa Clara co. One record from Santa Cruz Co.		No suitable habitat.
Calicina diminua	Marin blind harvestman	FSC			Serpentine rock outcrops, serpentine grasslands.		Known only from Burdell mountain in Marin County		No suitable habitat.
Cicindela hirticollis gravida	Sandy beach tiger beetle	FSC			Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico.	Clean, dry, light-colored sand in the upper zone. Subterranean larvae prefer moist sand not affected by wave action.	Ventura, Santa Barbara, San Diego, & Los Angeles Counties (occurrences).		No suitable habitat.
Hydrochara rickseckeri	Ricksecker's water scavenger beetle	FSC			Various water bodies.	Aquatic; known from the San Francisco bay area.	Marin, San Mateo, Sonoma & Solano County (occurrences)		Potential habitat adjacent to the project area in creek, but will not be impacted by project.
Incisalia mossii marinensis	Marin elfin butterfly	FSC			Coastal grassland, coastal scrub.	Marin elfin butterfly are closely tied to a single larval host plant-broadleaf stonecrop (*Sedum spatulifolium*) which occurs in coastal grasslands on thin rocky soils within coastal scrub grassland habitats.	San Bruno mtn., Montara mtn., Mt. Diablo, and Alpine lake. Steep North facing slopes, and coastal mountains of SF Bay Area.		No suitable habitat.
Microcina tiburona	Tiburon microblind harvestman	FSC			Open hilly grassland habitat in areas of serpentine bedrock.	Found on the undersides of serpentine rocks near permanent springs.	Marin County (occurrences).		No suitable habitat.

Table 1. Special Status Species

Scientific Name	Common Name	Legal Status			Habitat requirement and/or association	Micro habitat	Species Distribution / Range	Identification Period	Comments Regarding NSD Dechlorination Facility Site
		Federal	State	CNPS					
Speyeria zerene myrtleae	Myrtle's silverspot butterfly	FE			Coastal dunes, scrub, and grassland.	Closely associated with larval and food plants violet (*Viola adunca*) in areas sheltered from the wind below 820 feet within 3 miles of the coast.	Western Marin & Southwest Sonoma Counties		No suitable habitat.
Syncaris pacifica	Californian fresh water shrimp	FE	SE		Streams of 12 -36 inches in depth with exposed live roots of trees along under cut banks >6" with over hagning woody debris		Tributary streams in the lower Russian River drainage westward to the Pacific Ocean		No suitable habitat.
Fish									
Eucyclogobius newberryi	Tidewater goby	FE			Brackish water habitats along the California coast from Agua Hedionda lagoon, San Diego Co. To the mouth of the Smith River.	Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water & high oxygen levels.	Eastern Pacific: Del Norte County in northern California, USA to Del Mar in southern California.		Potential habitat adjacent to the project area in creek, but will not be impacted by project.
Hypomesus transpacificus	delta smelt	FT			Spawning and rearing mostly in Sacramento-San Joaquin delta.	Brackish water in the Sacramento-San Joaquin Delta.	North America: Sacramento-San Joaquin Delta region in central California, USA.		Potential habitat adjacent to the project area in creek, but will not be impacted by project.
Lampetra ayresi	river lamprey	FSC			Lower Sacramento River, San Joaquin River & Russian River. May occur in coastal streams north of San Francisco bay.	Adults need clean, gravelly riffles, ammocoetes need sandy backwaters or stream edges, good water quality & temps < 25 c	Eastern Pacific: Tee Harbor, Alaska to Sacramento-San Joaquin drainage in California, USA. Freshwater resident population in Morrison Creek, Vancouver Island, British Columbia		No suitable habiat.
Lampetra tridentata	Pacific lamprey	FSC			Freshwater streams.	Pacific lamprey spend most of their life in freshwater streams before entering the ocean as adults to feed	Range in California, Oregon, Washington and Idaho with the most precipitous documented declines in the upper Columbia, Snake and North Umpqua river basins.		Potential habitat adjacent to the project area in creek, but will not be impacted by project.

Table 1. Special Status Species

Scientific Name	Common Name	Legal Status			Habitat requirement and/or association	Micro habitat	Species Distribution / Range	Identification Period	Comments Regarding NSD Dechlorination Facility Site
		Federal	State	CNPS					
Oncorhynchus kisutch	Coho salmon--Central California coast	FT,SE, CH	SE		Coastal streams draining to ocean (including those to S.F. bay) with spawning, juvenile rearing habitat, and migratory corridor		Point Hope, Alaska south to Chamalu Bay, Baja California, Mexico.		No suitable habitat.
Oncorhynchus mykiss	Steelhead — Central California Coast	FT			Coastal streams draining to ocean (including those to S.F. bay) with spawning , juvenile rearing habitat, and migratory corridor		California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive),		No suitable habiat.
Oncorhynchus mykiss	Steelhead — Central Valley	FT			Spawning and juvenile rearing habitat in sacramento and San Joaquin rivers and their tributaries		Sacramento and San Joaquin Rivers and their tributaries.		No suitable habitat.
Oncorhynchus tshawytscha	Chinook salmon — California coastal	FT			Spawning and juvenile rearing in large coastal stream and rivers draining to ocean.		Arctic and Pacific: drainages from Point Hope, Alaska to Ventura River, California, USA; occasionally strays south to San Diego in California, USA.		No suitable habitat.
Oncorhynchus tshawytscha	Chinook salmon — Central Valley fall/late fall run	CH, FC			Populations spawning in the Sacramento & San Joaquin Rivers and their tributaries.		Arctic and Pacific: drainages from Point Hope, Alaska to Ventura River, California, USA; occasionally strays south to San Diego in California, USA.		No suitable habitat.
Oncorhynchus tshawytscha	Chinook salmon — Central Valley spring run	FT	ST		Adults depend on pool depth & volume, amount of cover, & proximity to gravel. Water temps >27 c lethal to adults	Federal listing refers to populations spawning in Sacramento River & tributaries.	Arctic and Pacific: drainages from Point Hope, Alaska to Ventura River, California, USA; occasionally strays south to San Diego in California, USA.		No suitable habitat.
Oncorhynchus tshawytscha	Chinook salmon —winter run	FE, CH	SE		Spawning and juvenile rearing habitat in Sacramento River and tributaries		Arctic and Pacific: drainages from Point Hope, Alaska to Ventura River, California, USA; occasionally strays south to San Diego in California, USA.		No suitable habitat.

Table 1. Special Status Species

Scientific Name	Common Name	Legal Status			Habitat requirement and/or association	Micro habitat	Species Distribution / Range	Identification Period	Comments Regarding NSD Dechlorination Facility Site
		Federal	State	CNPS					
Pogonichthys macrolepidotus	Sacramento splittail	FT			Endemic to the lakes and rivers of the Central Valley, but now confined to the delta, Suisun Bay & associated marshes.	Slow moving river sections, dead end sloughs. Require flooded vegetation for spawning & foraging for young.	North America: formerly known throughout the Sacramento-San Joaquin River drainage in California, USA; now restricted to San Francisco Bay Delta and lower Sacramento River.		Potential habitat, but unlikely . Seen in Petaluma River and at Highway 37.
Spirinchus thaleichthys	longfin smelt	FSC			Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column.	Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	North Pacific: Prince William Sound, Alaska to Monterey Bay, California, USA. Landlocked in Washington and Union Lakes in Washington, USA		No suitable habitat.
Reptiles									
Clemmys marmorata marmorata	northwestern pond turtle	FSC			Slow moving waterways, lakes and ponds.	Aquatic turtle: requires ponds, slow-moving waterways such as creeks and irrigation ditches where water ponds. Prefers habitats with basking sites, aquatic vegetation, and suitable upland habitats for egg-laying.	north of the San Francisco Bay-Delta Estuary (the western pond turtle occurs on suitable aquatic habitats throughout California west of the Sierra Nevada and in parts of Oregon and Washington).		Marginally sutiable habitat adjacent to site in creek, but will not be affected by project.
Phrynosoma coronatum frontale	California horned lizard	FSC			Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes.	Open areas for sunning, bushes for cover, patches of loose soil for burial, & abundant supply of ants & other insects.	Shasta County, Southwest along the Sacramento valley south Coast Ranges, San Joaquin Valleys, and Sierra Nevada foothills.		No suitable habitat.
Rana aurora aurora	northern red-legged frog	FSC			Found in humid forests, woodlands, grasslands, and streamsides in northwestern california.	Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.	Mendocino Co., Oregon, and Washington. Range overlaps with R.a. draytonii in Pt. Arena, Mendocino Co.		No suitable habitat - site is out of species range.

Table 1. Special Status Species

Scientific Name	Common Name	Legal Status			Habitat requirement and/or association	Micro habitat	Species Distribution / Range	Identification Period	Comments Regarding NSD Dechlorination Facility Site
		Federal	State	CNPS					
Rana aurora draytonii	California red-legged frog	FT			Ponds and other permanent slow-moving waterbodies: lakes, reservoirs, slow streams, marshes, and bogs.	Adult require a dense, shrubby or emergent riparian vegetation closely associated with deep (>0.7 meters) still or slow-moving water.	California red-legged frogs are still locally abundant within portions of the San Francisco Bay area (including Marin County) and the central coast.		Limited low-quality aquatic habitiat in treatment ponds on IWTP site, but unlikely to occur due to degraded habitat quality and nearest occurrence is approximately 5 miles northeast of the site separated by barriers (such as Highway 37).
Rana boylii	foothill yellow-legged frog	FSC			Partly-shaded, shallow streams & riffles with a rocky substrate in a variety of habitats.	Egg clusters attached to downstream side of submerged rocks. Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis.	West of crest of Cascade mts., Ore., south in coastal mts. Of CA to San Gabriel River, Los Angeles County. Sierra Nevada foothills to about 6000'; Baja California.		No suitable habitat.
Spea hammondii	western spadefoot toad	FSC			Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands.	Vernal pools are essential for breeding and egg-laying.	North-central California, Central Valley, and foothills south to Baja.		No suitable habiat.
Birds									
Ageliaus tricolor	Tricolored blackbird	FSC			(Nesting colony) highly colonial species, most numerous in central valley & vicinity. Largely endemic to california.	Requires open water, protected nesting substrate, & foraging area with insect prey within a few km of the colony.	Gregarious; found year-round in large flocks in open country and dairy farms; nests in large colonies in marshes.		No suitable habitat.
Amphispiza belli belli	Bell's sage sparrow	FSC			(Nesting) nests in chaparral dominated by fairly dense stands of chamise. Found in coastal sage scrub in south of range.	Nest located on the ground beneath a shrub or in a shrub 6-18 inches above ground. Territories about 50 yds apart.	Western U.S. to n. Mexico		No suitable habitat.
Athene cunicularia hypugaea	Western burrowing owl	FSC			(Burrow sites) open, dry annual or perenial grasslands, deserts & scrublands characterized by low-growing vegetation.	Subterranean nester, dependent upon burrowing mammals, most notably, the california ground squirrel.			No burrows observed on site or in vicinity, so species is unlikely to occur.

Table 1. Special Status Species

Scientific Name	Common Name	Legal Status			Habitat requirement and/or association	Micro habitat	Species Distribution / Range	Identification Period	Comments Regarding NSD Dechlorination Facility Site
		Federal	State	CNPS					
Buteo regalis	Ferruginous hawk	FSC			(Wintering) open grasslands, sagebrush flats, desert scrub, low foothills & fringes of pinyon-juniper habitats.	Mostly eats lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	Sw. Canada, Western U.S.. Winters SW. U.S., N. Mexico		Wintering habitat is present, but no suitable nesting habitat.
Calidris canutus	Red knot	FSC			Breeds on tundra; during migration, on tidal flats, rocky shores, and sandy beaches.	breeds often with dowitchers	Breeds on islands in High Arctic of Canada. Winters along coasts from California and Massachusetts southward to southern South America. Also in Eurasia.		No suitable habitat
Calypte costae	Costa's hummingbird	FSC			Fairly common in desert washes, dry chaparral.		Occurs mainly in Southern California, Arizona, Baja California, and western Mexico, but also extends into Nevada, extreme southeastern Utah, and southeastern New Mexico. Their range is expanding into new and historically occupied areas in parts of Arizona		No suitable habitat
Charadrius alexandrinus nivosus	Western Snowy plover	FT, CH			Coastal beaches, sand spits, dune-backed beaches, beaches at river mouths, salt pans at lagoons and estuaries, mud flats, and man-made salt ponds.		Breeds primarily on coastal beaches from southern Washington to southern Baja California, Mexico.		No suitable habitat
Cypseloides niger	Black swift	FSC			(Nesting) coastal belt of Santa Cruz & Monterey Co; central & southern Sierra Nevada; San Bernardino & San Jacinto mtns.	Breeds in small colonies on cliffs behind or adj to waterfalls in deep canyons and sea-bluffs above surf; forages widely	Breeds from southern Alaska south to southern California, Montana, and Colorado. Winters in tropics.		No suitable habitat
Diomedea albatrus	Short-tailed albatross	FE			Marine and near shore habitats for foraging. Breeds in South Pacific		Breeds on Bonin Island off Japan. Formerly ranged from Bering Sea to Baja California, may again do so.		No suitable habitat

Table 1. Special Status Species

Scientific Name	Common Name	Legal Status			Habitat requirement and/or association	Micro habitat	Species Distribution / Range	Identification Period	Comments Regarding NSD Dechlorination Facility Site
		Federal	State	CNPS					
Elanus leucurus	White-tailed kite	FSC			(Nesting) rolling foothills/valley margins w/scattered oaks & river bottomlands or marshes next to deciduous woodland	Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Resident in coastal and interior California, Arizona, and southern Texas. Also in American tropics.		Foraging habitat is present, but no suitable nesting habitat.
Falco peregrinus anatum	American peregrine falcon	DM	SE		(Nesting) near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures.	Nest consists of a scrape on a depression or ledge in an open site.	Breeds from non-Arctic portions of Alaska and Canada south to Baja California (except on the coast of southern Alaska and in British Columbia), central Arizona and Mexico (locally)		No suitable habitat
Geothlypis trichas sinuosa	Saltmarsh common yellowthroat	FSC			Resident of the San Francisco Bay region, in fresh and salt water marshes.	Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	Canada to s. Mexico. Winters s. U.S. to W. Indies, Panama.		No suitable habitat
Haliaeetus leucocephalus	Bald eagle	FT	SE		Large trees near lakes, rivers, or estuaries for foraging. Disturbance intolerant.		Alaska, Canada, to s. U.S.		No suitable habitat
Histrionicus histrionicus	Harlequin duck	FSC			(Nesting) breeds on west slope of the Sierra Nevada, nesting along shores of swift, shallow rivers.	Nest often built in a recess, sheltered overhead by stream bank, rocks, woody debris, usually within 7 ft of water	Ne. Asia, Alaska, Canada, w. U.S., Greenland, Iceland		No suitable habitat
Lanius ludovicianus	Loggerhead shrike	FSC			(Nesting) broken woodlands, savannah, pinyon-juniper, joshua tree, & riparian woodlands, desert oases, scrub & washes.	Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	S. Canada to s. Mexico		No suitable habitat
Laterallus jamaicensis coturniculus	Black rail		ST		Mainly inhabits salt-marshes bordering larger bays.	Occurs in tidal salt marsh heavily grown to pickleweed; also in fresh-water and brackish marshes, all at low elevation.	NE and central U.S. and central California south locally to W. Indies, Chile		No suitable habitat

Table 1. Special Status Species

Scientific Name	Common Name	Legal Status			Habitat requirement and/or association	Micro habitat	Species Distribution / Range	Identification Period	Comments Regarding NSD Dechlorination Facility Site
		Federal	State	CNPS					
Limosa fedoa	Marbled godwit	FSC			Common on west coast in winter, fairly common on Texas gulf coast and in Florida; rare but regular in the east.	Shorebird.	N. Great Plains; locally sw. Alaska. Winters s. U.S. to north South America.		No suitable habitat.
Melanerpes lewis	Lewis' woodpecker	FSC			Open ponderosa pine forest, open riparian woodland dominated by cottonwood, and logged or burned pine forest; also found in oak woodland, nut and fruit orchards, pinyon pine-juniper woodland, a variety of pine and fir forests, and agricultural areas		The breeding range approximately follows the distribution of Ponderosa Pine and extends from southern British Columbia, east to Colorado, south through New Mexico, and west to the Pacific coast. The wintering grounds consist of the southern portion of the		No suitable habitat
Melospiza melodia samuelis	San Pablo song sparrow	FSC			Resident of salt marshes along the north side of San Francisco and San Pablo Bays.	Inhabits tidal sloughs in the *Salicornia* marshes; nests in *Grindelia* bordering slough channels.	Alaska, Canada to cen. Mexico.		No suitable habiat.
Numenius americanus	Long-billed curlew	FSC			(Nesting) breeds in upland shortgrass prairies & wet meadows in northeastern California.	Habitats on gravelly soils and gently rolling terrain are favored over others.	Sw. Canada, W. U.S. Winters s. U.S. to Guatemala.		No suitable habiat.
Numenius phaepus	Whimbrel	FSC			Breeds on arctic tundra, especially near coasts; coastal salt meadows, mudflats, and grassy shoreline slopes during migration.		Arctic, circumpolar. Winters to s. S. America		No suitable habitat.
Pelecanus occidentalis californicus	California Brown pelican	FE	SE		Forage over near shore marine areas including open coast, San Francisco Bay, and Rodeo Lagoon. Utilize islands, rocks, cliffs, and some protected beach areas for roosting.		Coasts; s. U.S. to n. Brazil and Chile		No suitable habiat.
Rallus longirostris obsoletus	California clapper rail	FE	SE		Salt marsh with tidal channels.		Coasts of e. U.S. and California to n. S. America		No suitable habiat.

Table 1. Special Status Species

Scientific Name	Common Name	Legal Status			Habitat requirement and/or association	Micro habitat	Species Distribution / Range	Identification Period	Comments Regarding NSD Dechlorination Facility Site
		Federal	State	CNPS					
Riparia riparia	Bank swallow	CA			(Nesting) colonial nester; nests primarily in riparian and other lowland habitats west of the desert.	Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Widespread in N. Hemisphere. Winters in S. America, Africa, s. Asia.		No suitable habitat.
Rynchops niger	Black skimmer	FSC			(Nesting colony) nests along the north & south ends of the Salton Sea; also, on salt pond dikes of south San Diego Bay.	Nests on gravel bars, low islets, and sandy beaches, in unvegetated sites. Nesting colonies usually less than 200 pairs.	Cape Cod, s. California, south to s. S. America. A recently established resident of s. California, nesting at Salton Sea and near San Diego. Occasional elsewhere on California coast; casual, Arizona, New Mexico.		No suitable habitat.
Selasphorus rufus	Rufous hummingbird	FSC			(Nesting) breeds in transition life zone of northwest coastal area from Oregon border to southern Sonoma County.	Nests in berry tangles, shrubs, and conifers. Favors habitats rich in nectar-producing flowers.	Breeds in nw. N. America; winters in Mexico.		No suitable habitat.
Selasphorus sasin	Allen's hummingbird	FSC			Mixed evergreen, riparian woodlands, eucalyptus and cypress groves, oak woodlands, and coastal scrub areas in breeding season.		Breed in coastal California; winters in nw. Mexico		No suitable habitat.
Sterna antillarum browni	California least tern	FE	SE		Diked ponds or ditches along shorelines.		Temperate and tropical oceans. Winters south of U.S.		No suitable habitat.
Sterna elegans	Elegant tern	FSC			(Nesting colony) only known breeding colony in U.S. located in the salt work dikes at the south end of San Diego bay.	Nests on dikes between salt ponds in association with caspian tern.	Breeds on islands off Baja California. Winters Peru to Chile. Wanders irregularly (Aug-Oct.) north to San Francisco Bay; recently even to Washington. Breeds near San Diego.		No suitable habitat.
Mammals									
Aplodontia rufa phaea	Point Reyes Mountain Beaver	FSC			Coastal area of Point Reyes in areas of springs or seepages.	North facing slopes of hills & gullies in areas overgrown with sword ferns and thimbleberries.	110 square miles in the Point Reyes area of Marin County		No suitable habitat.

Table 1. Special Status Species

Scientific Name	Common Name	Legal Status			Habitat requirement and/or association	Micro habitat	Species Distribution / Range	Identification Period	Comments Regarding NSD Dechlorination Facility Site
		Federal	State	CNPS					
Corynorhinus townsendii townsendii	Pacific western big-eared bat	FSC			Humid coastal regions of northern & central California. Roost in limestone caves, lava tubes, mines, buildings etc.	Will only roost in the open, hanging from walls & ceilings. Roosting sites limiting. Extremely sensitive to disturbance	Washington, Oregon, California, Nevada, Idaho, and possibly southwestern Montana and northwestern Utah		No suitable habitat.
Eumops perotis californicus	Greater western mastiff-bat	FSC			Many open, semi-arid to arid habitats, including conifer & deciduous woodlands, coastal scrub, grasslands, chaparral etc	Roosts in crevices in cliff faces, high buildings, trees & tunnels.	Central California, southward to central Mexico. In California, they have been recorded from Butte County southward in the western lowlands through the southern California coastal basins and the western portions of the southeastern desert region		Limited suitable habitat, but unlikely to occur due to present level of activity and disturbance on IWTP site.
Myotis evotis	Long-eared myotis	FSC			Found in all brush, woodland & forest habitats from sea level to about 9000 ft. Prefers coniferous woodlands & forests.	Nursery colonies in buildings, crevices, spaces under bark, & snags. Caves used primarily as night roosts.	Southwestern Canada, south through California into Baja, eastward through northern Arizona and New Mexico and north into the Dakotas.		No suitable habitat.
Myotis thysanodes	Fringed myotis bat	FSC			In a wide variety of habitats, optimal habitats are pinyon-juniper, valley foothill hardwood & hardwood-conifer.	Uses caves, mines, buildings or crevices for maternity colonies and roosts.	Western North America from southern British Columbia, Canada, south to Chiapas, Mexico and from Santa Cruz Island in California, east to the Black Hills of South Dakota.		Limited suitable habitat, but unlikely to occur due to present level of activity and disturbance on IWTP site.
Myotis volans	Long-legged myotis bat	FSC			Most common in woodland & forest habitats above 4000 ft. Trees are important day roosts, caves & mines are night roosts.	Nursery colonies usually under bark or in hollow trees, but occasionally in crevices or buildings.	Found from the Tongas National Forest in Alaska, south, through all of the western U.S. and into the Baja peninsula, and also along the Sierra Madre Occidental in Mexico.		No suitable habitat.

Table 1. Special Status Species

Scientific Name	Common Name	Legal Status			Habitat requirement and/or association	Micro habitat	Species Distribution / Range	Identification Period	Comments Regarding NSD Dechlorination Facility Site
		Federal	State	CNPS					
Myotis yumanensis	Yuma myotis bat	FSC			Optimal habitats are open forests and woodlands with sources of water over which to feed.	Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	Throughout western North America, from British Columbia through Washington, Idaho, and western Montana, southern Wyoming, Colorado, New Mexico, West Texas and into Mexico.		Limited suitable habitat, but unlikely to occur due to present level of activity and disturbance on IWTP site.
Neotoma fuscipes annectens	San Francisco dusky-footed woodrat	FSC			Forest habitats of moderate canopy & moderate to dense understory. Also in chaparral habitats.	Constructs nests of shredded grass, leaves & other material. May be limited by availability of nest-building materials.			No suitable habitat.
Reithrodontomys raviventris	Salt marsh harvest mouse	FE	SE		Salt marsh, wetland.	Requires specific density of picleweed.	There are two known subspecies divided in two ranges: Northern: found in Marin, Sonoma, Napa, Solano and norhtern Contra Costa counties; Southern. Found in San Mateo, Alameda and Santa Clara counties. Some isolated populations occur in Marin and Contra		No suitable habitat.
Sorex ornatus sinuosus	Suisun ornate shrew	FSC			Tidal brackish marsh plains with dense cover, moist substrate, abundant invertebrates, tidal debris, and ample flood escape habitiat.		Suisun Marhs and marshes along the north shore of San Pablo Bay.		No suitable habitat.
Sorex vagrans halicoetes	Salt marsh vagrant shrew	FSC			Salt marshes of the south arm of San Francisco Bay.	Medium high marsh 6-8 ft above sea level where abundant driftwood is scattered among *Salicornia.*	Limited to the salt marshes of the south arm of San Francisco Bay		No suitable habitat.
Zapus trinotatus orarius	Point Reyes Jumping Mouse	FSC			Bunch grass marshes on the uplands of Point Reyes in areas safe from continuous inundation.	Eats mainly grass seeds w/ some insects & fruit taken. Builds grassy nests on ground under vegetation, burrows in winter	confined to a small area on the Point Reyes Peninsula		No suitable habitat.

Table 1. Special Status Species

Scientific Name	Common Name	Legal Status			Habitat requirement and/or association	Micro habitat	Species Distribution / Range	Identification Period	Comments Regarding NSD Dechlorination Facility Site
		Federal	State	CNPS					

KEY:

CH (federally-designated critical habitat), DM (federal de-listed and monitored species), FC (federal candidate for listing),FE (federally endangered), FSC (federal species of concern), FSLC (federal species of local concern),

FT (federally threatened), PCH (proposed federally-designated critical habitat), SE (state endangered), SR (state rare), ST (state threatened), 1A (CNPS List 1A: presumed extinct in CA),
1B (CNPS List 1B: rare, threatened, or endangered in CA and elsewhere), 3 (CNPS List 3: need more info, a review list), 4 (CNPS List 4: limited distribution, a watch list)

1. **Project Title:** Novato Sanitary District Dechlorination Facility Relocation Project

2. **Lead Agency Name and Address:** Novato Sanitary District (NSD)
500 Davidson Street.
Novato, CA 94945

3. **Contact Person and Phone Number:** Sandeep Karkal, Deputy Manager-Engineer
415-892-1694

4. **Project Location:** The proposed project is located at the Ignacio Treatment Plant and an injection site approximately 600 feet north of Bel Marin Keys Boulevard. The portion of the project located at the Ignacio Treatment Plant is on land owned by the Novato Sanitary District and is within the City of Novato. A portion of the project is located in an NSD easement through privately owned property. This portion is located within the City of Novato Sphere of Influence as defined by LAFCO, but is outside the City/Urban Growth Boundary line.

5. **Project Sponsor's Name and Address:** See No. 2, Lead Agency, above.

6. **General Plan Designation:** Community Facilities for the storage site (Novato General Plan). Agriculture and Conservation/Bayland Corridor for the pipeline and injection site(Marin Countywide Plan, 2004)

7. **Zoning:** Community Facilities/Agriculture and Conservation

8. **Description of Project:** The project will relocate a dechlorination facility. The project would construct a dechlorination chemical storage facility consisting of a tank and metering pumps at the Ignacio treatment plant (ITP), an injection point on the combined outfall from the Ignacio and Novato treatment plants (NTP), and interconnecting piping. The dechlorination facility will continue to use sodium bisulfite to remove chlorine residual from the treated effluent from the Ignacio and Novato treatment plants before it is discharged to San Pablo Bay.

9. **Surrounding Land Uses and Setting.** Pasture lands. The setting is rural, with large expanses of open lands in pasture.

10. **Other public agencies whose approval may be required:**
    - State Coastal Conservancy Commission
    - San Francisco Regional Water Quality Control Board
    - California Department of Fish and Game
    - City of Novato
    - County of Marin

Environmental Factors Potentially Affected:

The environmental factors checked below would be potentially affected by this project. Mitigation measures identified in this document would reduce all potential impacts to a less-than-significant level.

☐ Aesthetics	☐ Agriculture Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Geology / Soils
☒ Hazards & Hazardous Materials	☒ Hydrology / Water Quality	☐ Land Use / Planning
☐ Mineral Resources	☒ Noise	☐ Population / Housing
☐ Public Services	☐ Recreation	☒ Transportation / Traffic
☐ Utilities / Service Systems	☐ Mandatory Findings of Significance	

DETERMINATION: (To be completed by Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

_____	_____
Signature	Date
Beverly B. James	Manager-Engineer
Printed Name	Title